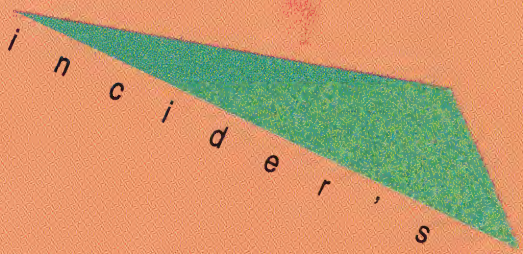
SPECIAL EDITION



TEN BEST APPLEWORKS® TEMPLATES

Ten easy-to-use AppleWorks® programs that add power and versatility to your Apple II repertoire!

®AppleWorks is a product of Apple Computer, Inc.

Introduction

Welcome to the new business solutions, improved productivity and increased computing competence you'll soon enjoy with these ten specially selected AppleWorks templates from *inCider*!

Make a mailing. . . track your customers. . . identify your best salespeople. . . sell your ideas with inviting graphics. . . produce professional-looking quotes. . . create a newsletter. . .

Those are just a few of the techniques and processes you'll soon be doing quickly and easily with the ten templates in this special collection.

Each template has been individually reviewed and selected by the AppleWorks pros at *inCider* magazine. Key them in right from this booklet, and away you go to a more exciting, more profitable business or professional experience!

Contents

Customer Mailing Labels 1

Learn to use AppleWorks' data base to organize your address lists and print mailing labels.

Price Quotes Made Easy 9

AppleWorks helps you prepare professional-quality request-for-quotation (RFQ) spreadsheets.

Cutting and Pasting with AppleWorks 18

An AppleWorks word processor that allows you to integrate spreadsheet data into your price-quote letter.

Price-Volume Analysis 25

Strike the profitable balance between price and volume with your AppleWorks spreadsheet.

Working with a Customer Data Base—Part 1 33

Each customer is vitally important. This data base helps you keep in touch.

Working with a Customer Data Base—Part 2 41

Here's how to spot those salespeople who are the real producers, and those who are marginal.

Converting a Data-Base Report to a Spreadsheet 48

Converting the sales-to-date report to a spreadsheet allows you to use the built-in calculating functions.

An AppleWorks Bar-Graph Template 56

Here's how to turn dry numbers into exciting, idea-selling visuals.

A Spreadsheet Gradebook 62

Save countless hours of tedious computation with an AppleWorks gradebook.

Publishing a Company Newsletter 72

Create good will and get the word out with a quick-and-easy company newsletter.

About the Authors

Ruth Witkin

Ruth K. Witkin is a consultant in computer applications for business. She is the author of the hotCider *Success with AppleWorks* (*inCider*, CW Communications), *Managing with AppleWorks* (Howard W. Sams & Co.), and *Personal Money Management with AppleWorks* (Hayden Books). Write to her at 5 Patricia Street, Plainview, NY 11803. Enclose a stamped, self-addressed envelope if you'd like a personal reply.

David Goodrum and Joel Robbins

David Goodrum and Joel Robbins are developers of SchoolWorks templates for AppleWorks, published by K–12 MicroMedia Publishing, and other educational software. Write to them at Tulip Tree House 1016, Bloomington, IN 47401. Enclose a stamped, self-addressed envelope if you want a personal reply.

James Troutman

James G. Troutman is chairman of the Physical Science Department at York College of Pennsylvania, Country Club Road, York, PA 17403-3426.

Cover design by Karla M. Whitney

Customer Mailing Labels

by Ruth K. Witkin

Learn to use AppleWorks' data base to organize your address lists and print mailing labels.

This tutorial, the first of a three-parter, explains how to build a data base of customers and generate mailing labels. In the next part (see "Price Quotes Made Easy," p. 9), you'll be using the AppleWorks spreadsheet and a lookup table to prepare a quotation for one of these customers, and, in the part after that ("Cutting and Pasting with AppleWorks," p. 18), compose a letter, then "cut and paste" the quoted information from the spreadsheet into the letter. Cut-and-paste lets you turn pieces and parts of files into a seamless whole.

The Mailing-List Data Base

Let's pretend you own the small, but growing, Rocky Hill Hardware Supply Company, a wholesale distributor. In addition to responding to RFQs (requests for quotation), you mail letters and promotional material to customers and, at Christmas, send cards of appreciation for their business. The mailing labels generated by your customer data base are shown in FIGURE 1.

Labels come in many styles and sizes. I use the fanfold, one-across, pressure-sensitive kind in a standard 3½ inches wide by $^{15}/_{16}$ inch high. If you don't have label paper in your printer, you can get an idea of what they'll look like with normal printer paper.

Data Base Definitions

A data base is a collection of information organized into entries, categories, and records. An *entry* is a *single piece of information*, such as the name of a specific company or a zip code. A *category* is *one type of information*, such as the names of all the companies or all the zip codes in the data base. A *record* is *all the information about one company*—contact person, company name, street, city, state, zip code, and so on.

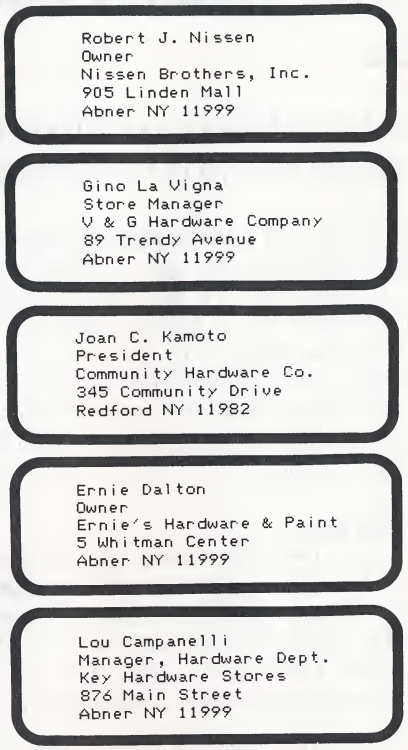


Figure 1. Mailing labels produced with an AppleWorks customer data base.

Keystrokes and Other Matters

When you see such key combinations as OA-Y, hold down the open apple key and type Y. With repeated combinations, such as OA-right arrow (9 times), hold down the open apple key and press the right arrow key nine times. If you make a typo, hit the delete key to back up the cursor and erase the character.

At some stages of the creation process, I'll ask you to save the data base. If you have a one-drive system, watch for the screen prompts that tell you when to swap the Program disk for the data disk. You'll be working with the insert cursor (the blinking underline) until the instructions say otherwise. Now, let's begin.

Creating the Data Base from Scratch

Use the AppleWorks Startup and Program disks to bring up a new data-base screen. When AppleWorks asks for a file name, type MAIL LIST and press the return key. You should now see the Change Name/Category screen.

FIGURE 2 lists the category names. To keep it simple, this data base contains only those categories needed for mailing labels. You can have up to 30 categories, including information such as phone numbers, type of company, sales representative, purchases to date, and so on.

Your cursor is on the C in CATEGORY 1. The first thing to do is erase these words, so press OA-Y. Now type the following category names and press the return key after each one: FIRST MI, LAST, TITLE, COMPANY, STREET, CITY, STATE, and ZIP. Keeping the first name, last name, city, state, and zip code in separate categories gives you full flexibility when you want to arrange or sort records.

This completes the category entry. Press the escape key, and AppleWorks informs you that you'll automatically go into the Insert New Records mode. Press the space bar or the return key, and Record 1 appears in the single-record layout with all your categories awaiting entries.

FIGURE 3 shows the entries in the records. All your customers except Community Hardware (Record 7) are located in the city of Abner, state of New York, zip code 11999. Entries common to most or all of your records are called *standard values*. When you set a standard value, AppleWorks automatically enters the information into each record to save you time.

Press OA-V to bring up the Set Standard Values screen. Press the down arrow key (5 times), type in ABNER, press Return, type NY, press Return, type 11999, and press Return again. Now hit the escape key to return to Record 1 in the Insert New Records screen.

The next step is to type in the rest of the information in Record 1. First, press the up arrow key (7 times) to move the cursor to the FIRST MI category. Type in the following words, and be sure to press the return key after each entry: HAROLD A., STARR, OWNER, ABNER HARDWARE & PAINT, and 30 SHORE ROAD. To skip past the standard entries and bring up Record 2, press OA-down arrow.

```
File: MAIL LIST              CHANGE NAME/CATEGORY    Escape: Review/Add/Change
Category names
================================================================================
First MI                                |
Last                                    | Options:
Title                                   |
Company                                 | Change category name
Street                                  | Up arrow    Go to filename
City                                    | Down arrow  Go to next category
State                                   | @-I         Insert new category
Zip                                     | @-D         Delete this category
                                        |
                                        |
                                        |
                                        |
                                        |
                                        |
--------------------------------------------------------------------------------
Type entry or use @ commands                                        53K Avail.
```

Figure 2. Category names from an AppleWorks mailing-list data base.

Refer to FIGURE 3 and follow the same procedure to fill Records 2 through 6 *only*. Be sure to press Return after typing each entry, then OA-down arrow to get to the next record. When you're done, your cursor should be in the FIRST MI category in Record 7.

Now type in the information in the first five categories of Record 7, from FIRST MI to STREET. Your cursor should now be in the CITY category.

In the next few steps, you'll switch to the overtype cursor (a blinking rectangle), replace the standard ABNER entry with REDFORD, and the zip code 11999 with 11982. To do this, press OA-E, type REDFORD, press Return (2 times), press the right arrow key (3 times), type 82, and press Return.

Store the data base on disk by pressing the OA-S key combination. AppleWorks saves the file and brings up the records in the multiple-record version of the Review/Add/Change screen. A few of the records are "hiding" under the dashed line. Press OA-1 to bring them into view.

The next step is to create a format to print the mailing labels. Press OA-P to bring up the Report Menu screen. Now tell AppleWorks you want to create a new label format and name the report CUSTOMER LABELS: Type 3, press Return, type CUS-

CATEGORY	RECORD 1	RECORD 2
First MI:	Harold A.	Lou
Last:	Starr	Campanelli
Title:	Owner	Manager, Hardware Dept.
Company:	Abner Hardware & Paint	Key Hardware Stores
Street:	30 Shore Road	876 Main Street
City:	Abner	Abner
State:	NY	NY
Zip:	11999	11999

CATEGORY	RECORD 3	RECORD 4
First MI:	Robert J.	Karen E.
Last:	Nissen	McDermott
Title:	Owner	Buyer
Company:	Nissen Brothers, Inc.	Best Hardware Centers
Street:	905 Linden Mall	82-A Sunrise Circle
City:	Abner	Abner
State:	NY	NY
Zip:	11999	11999

CATEGORY	RECORD 5	RECORD 6
First MI:	Gino	Ernie
Last:	La Vigna	Dalton
Title:	Store Manager	Owner
Company:	V & G Hardware Company	Ernie's Hardware & Paint
Street:	89 Trendy Avenue	5 Whitman Center
City:	Abner	Abner
State:	NY	NY
Zip:	11999	11999

CATEGORY	RECORD 7
First MI:	Joan C.
Last:	Kamoto
Title:	President
Company:	Community Hardware Co.
Street:	345 Community Drive
City:	Redford
State:	NY
Zip:	11982

Figure 3. Record entries from an AppleWorks mailing-list data base.

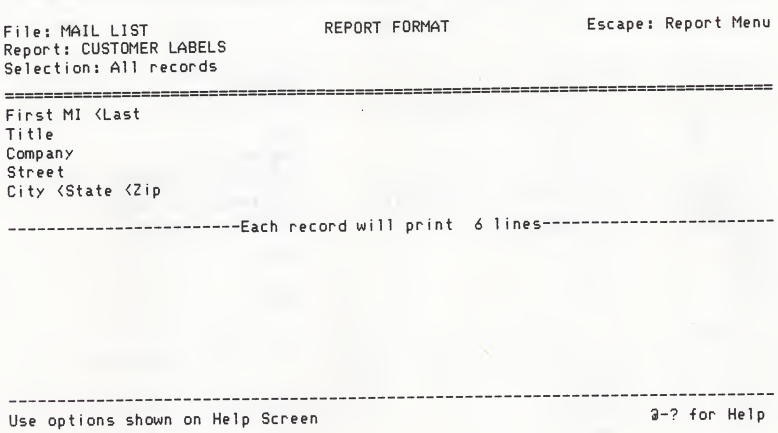


Figure 4. Mailing-list report format from an AppleWorks data base.

TOMER LABELS, and hit the return key again. FIGURE 4 shows the mailing-label format.

Positioning the Categories

Keeping categories separate is a plus when you arrange records. On a mailing label, though, the first and last names belong together on one line, as do the city, state, and zip code.

Let's start by combining the first- and last-name categories. First, press the down arrow key to move the cursor to the LAST category. Now, move the LAST category to the right of the FIRST MI category: Press OA-right arrow (9 times), then press OA-up arrow.

Left-justifying the last-name category prevents gaps between the first and last names or truncated first names. Your cursor is on the L in LAST, so press OA-J.

A less-than sign appears, indicating that any entry in the LAST category will be printed starting at the proper place after the entry in the FIRST MI category, regardless of the length of the FIRST MI entry. For example, *Campanelli* will begin five characters after the L in *Lou*, and *Nissen* will begin 11 characters after the R in *Robert J.*

Now move the cursor to the blank line and delete it by pressing Return, then OA-D.

The city, state, and zip code are combined in the same way. The next few steps move the cursor to the STATE category, position the categories, left-justify the state and zip code so that they're printed properly after the name of the city, and delete a blank line. Press the down arrow key (4 times), OA-right arrow (5 times), OA-up arrow, OA-J, Return, OA-D, OA-right arrow (12 times), OA-up arrow, and OA-J.

The screen should now display the sentence: EACH RECORD WILL PRINT 6 LINES. The blank line below CITY <STATE <ZIP separates the printing on one label from that on the next.

Preparing for Printing

Suppose you have a large number of customers. It's easiest to scan a long list arranged by company name. To move your cursor to the C in COMPANY and arrange the records in alphabetical order, press up arrow (2 times), left arrow (12 times), OA-A, and then Return.

You don't need a report header at the top of each page of labels, so the next step is to press OA-O to bring up the Printer Options screen. Now toggle the header setting from YES to NO by typing PH and hitting the return key.

The left-margin setting controls where the information is placed horizontally on the label. With the left sprocket on my ImageWriter as far left as it could go and the right sprocket shifted toward the center, a .4-inch left margin produced a well-balanced look. You're still in the Printer Options screen, so type LM, press Return, type .4, and press Return again.

The next setting tells AppleWorks the paper length. Think of each label as a complete page and all the labels as a whole collection of pages. The paper length, therefore, is one inch ($^{15}/_{16}$ inch high plus $^{1}/_{16}$ inch between labels). To make this setting, type PL, press the return key, type 1, and hit Return. Now press the escape key to return to the Report Format screen.

You're now set to print the labels. If you have label paper, this is the time to load it. Turn on your printer and follow these steps to start the Print command, select the printer, and confirm one

copy: Press OA-P, press Return (or type a printer number, then press Return). Press Return once more and your printer starts working on the customer mailing labels.

Now store the data base and the report format on disk by pressing OA-S. AppleWorks returns to the multiple-record layout in the Review/Add/Change screen. Arranging has a universal effect, so the records on screen are now in alphabetical order by company name, just as they are on the labels.◄

Price Quotes Made Easy

by Ruth K. Witkin

AppleWorks helps you prepare professional-looking request-for-quotation spreadsheets.

Like any other consumers of goods and services, businesses shop around for the best prices. If your business sells something to other businesses, you're likely to get your fair share of RFQs (requests for quotation). AppleWorks makes it easy to prepare clear, consistent, and competitive quotes that can help your business become more successful.

In this session, the second of three parts, you'll create a spreadsheet with a lookup table of hardware supplies and wholesale prices for your company, Rocky Hill Hardware Supply. When you enter an item number, the formulas find the unit price in the lookup table, enter it in the quote, calculate the extension (unit price times quantity), and produce the subtotal, discount, and total quote. FIGURE 1 shows the completed spreadsheet.

You won't need the mailing list you created last month to do the quote spreadsheet, but you will have to create this spreadsheet to do the next example (see "Cutting and Pasting with AppleWorks," p. 18), which integrates the quote section with a letter.

How a Lookup Table Works

A lookup table consists of two rows or two columns of cells you indicate on a spreadsheet. One row or column contains scan numbers and the other contains corresponding numbers. A formula with the LOOKUP function searches the scan cells for a number you designate and retrieves the corresponding number, saving you the time of looking it up and typing it in.

If the scan cells are in a row, the formula searches the table from left to right until it finds the largest number less than or equal to your number, and retrieves the number from the cell immediately below. If the scan cells are in a column, the formula searches the table from top to bottom and retrieves the number from the cell to the immediate right.

```
======A======B=====C============D================E=========F======
  1|Quote to Bob Nissen, Nissen Brothers                    RFQ 23451
  2|=============================================================
  3|                                                  Unit     Extended
  4|  Qty    Item #    Description                   Price      Price
  5|-------------------------------------------------------------
  6|  48       259     Phillips Screwdrivers         $2.50     $120.00
  7|  24       250     Crescent Wrenches             $6.75     $162.00
  8|  24       210     Harris Drill Sets            $32.55     $781.20
  9|  12       283     Cartons 20d Common Nails     $65.00     $780.00
 10|-------------------------------------------------------------
 11|                                              Subtotal   $1,843.20
 12|                                              Discount      $92.16
 13|                                              Total      $1,751.04
 14|
 15|PRICE LOOKUP TABLE
 16|=========================================
 17|Item   Price      Description
 18|-----------------------------------------
 19| 210    32.55     Harris Drill Set
 20| 250     6.75     Crescent Wrench
 21| 259     2.50     Phillips Screwdriver
 22| 276    15.75     Wood Chisel Set
 23| 283    65.00     Carton 20d Common Nails
 24| 287    72.50     Harding Belt Sander
 25| 291   125.00     Romex 3x#12 Cable (1000')
 26| 292       NA
```

Figure 1. AppleWorks spreadsheet used for price quotations to customers.

Keystrokes and Other Matters

When you see such key combinations as OA-L, hold down the open apple key and type L. With repeated combinations, such as OA-left arrow (4 times), hold down the open apple key and press the left arrow key four times. If you make a typo, the delete key backs up the cursor and erases the character before it.

At several stages of the creation process, you'll have to save the spreadsheet. If you have a one-drive system, watch the screen for prompts that tell you when to swap the Program disk for the data disk.

Creating the Spreadsheet from Scratch

Use the AppleWorks Startup and Program disks to bring up a new spreadsheet screen. Name this file QUOTE. You should now see the Review/Add/Change screen. Assuming you're familiar with AppleWorks, use the following summary to set up the spreadsheet so it looks like the one in FIGURE 2.

Dashed Lines—Each column is now nine characters wide. Use an equal sign to enter the line in A2 through F2 and in A16 through D16. Use a minus sign to enter the line in A5 through F5, A10 through F10, and A18 through D18. In each case, type quotation marks before typing the sign.

Column Widths—Use the Layout command (OA-L) to reduce the width of column A by four characters, reduce column C by six characters, increase column D by 17 characters, and increase column F by three characters.

Labels and Lookup Table—Enter the labels in rows 3, 4, and 17, in E11, E12, and E13, and in rows 15 through 26 (columns A, B, and D). Cell B26, which is empty now, will soon contain the NA function to "cap" the table.

The following formats make the labels and numbers look like those in FIGURE 3. For labels, use the Layout command (OA-L) to right-justify A4, B4, and F1, then center E3 through F4 and B17.

I often use the Commas format for numbers, even if the numbers will never be large enough to need commas. This format places the number one character shy of the right edge of the cell, producing a better alignment with headings. Use the Value command (OA-V) to set a standard value of Commas with zero decimal places. Use the Layout command (OA-L) to put the prices in the lookup table (B19 through B25) into a Commas format with two decimal places, and the unit and extended prices (E6 through F9 and F11 through F13) into a Dollars format with two decimal places. Now press OA-S to store the spreadsheet on disk.

Entering the Formulas

FIGURE 3 shows the locations of the formulas that perform the calculations. First, read how the formula works. Then place the cursor on the cell location. Move the cursor to the cell locations that belong in the formula and type everything else. When the formula is complete, press the return key. If you run into a snag, simply press the escape key and start again.

Formula 1: Unit Price

Formula 1, which contains the LOOKUP function, looks at the item number in B6, scans the item numbers in the price lookup table (A19 to A26), retrieves the price from the corresponding cell (B19 to B25), and enters this amount into E6. Type only one period when your cursor is on A19; AppleWorks automatically converts it to three periods.

```
======A======B=====C============D================E=========F======
  1|
  2|=============================================================
  3|                                                  Unit      Extended
  4|Qty  Item #      Description                      Price     Price
  5|-------------------------------------------------------------
  6|
  7|
  8|
  9|
 10|-------------------------------------------------------------
 11|                                                  Subtotal
 12|                                                  Discount
 13|                                                  Total
 14|
 15|PRICE LOOKUP TABLE
 16|==========================================
 17|Item Price       Description
 18|------------------------------------------
 19| 210     32.55   Harris Drill Set
 20| 250      6.75   Crescent Wrench
 21| 259       2.5   Phillips Screwdriver
 22| 276     15.75   Wood Chisel Set
 23| 283        65   Carton 20d Common Nails
 24| 287      72.5   Harding Belt Sander
 25| 291       125   Romex 3x#12 Cable (1000')
 26| 292
```

Figure 2. Labels, lines, and lookup table in an AppleWorks quotation spreadsheet.

Cell location: E6
Description: @LOOKUP(B6,A19. . .A26)

Formula 1 has no item number with which to work, so *NA* appears.

Formula 2: Extended Price

Formula 2 multiplies the quantity (A6) by the unit price (E6) and enters the extended price into F6.

Cell location: F6
Description: +A6*E6

Formula 2 refers to E6, which contains NA, so it too displays NA.

Formulas 1 and 2 can calculate the unit price and extended price for other items. Place your cursor on E6. Now follow these steps to start the Copy command, confirm *Within worksheet*, highlight the cells to copy from (E6 and F6), and tell AppleWorks the cells to copy into (E7 to E9). Type OA-C, press Return, press right arrow, press Return again, then press the down arrow key. Type a period, press down arrow (2 times), and press Return.

AppleWorks now highlights B6 and asks if it is a *No change* or


```
======A======B=====C============D================E=========F======
  1|
  2|=============================================================
  3|                                                  Unit      Extended
  4|  Qty   Item #   Description                      Price     Price
  5|-------------------------------------------------------------
  6|                                                    NA (1)    NA (2)
  7|                                                    NA        NA
  8|                                                    NA        NA
  9|                                                    NA        NA
 10|-------------------------------------------------------------
 11|                                                  Subtotal      NA (3)
 12|                                                  Discount      NA (4)
 13|                                                  Total         NA (5)
 14|
 15|PRICE LOOKUP TABLE
 16|==========================================
 17|Item   Price      Description
 18|------------------------------------------
 19| 210     32.55    Harris Drill Set
 20| 250      6.75    Crescent Wrench
 21| 259      2.50    Phillips Screwdriver
 22| 276     15.75    Wood Chisel Set
 23| 283     65.00    Carton 20d Common Nails
 24| 287     72.50    Harding Belt Sander
 25| 291    125.00    Romex 3x#12 Cable (1000')
 26| 292        NA (6)
```

Figure 3. Formula locations in an AppleWorks quotation spreadsheet.

Relative cell reference. To select *No change*, press Return. To select *Relative*, type R. Identify which is which by typing R, pressing Return (2 times), and typing R (2 times).

Formula 3: Subtotal

Formula 3 adds the entries in F6 to F9 to produce the subtotal in F11. The formula includes the lines in F5 and F10. In this way, when you later insert rows into the quote area, AppleWorks will adjust the formula to add the new entries. Type only one period when your cursor is on F10.

Cell location: F11
Description: @SUM(F10. . .F5)

Formula 4: Discount

Formula 4 uses the IF function to return one of two possible answers. Rocky Hill Hardware gives a 5 percent discount on purchases of $1500 or more, no discount on anything less. The Test statement looks at the number in F11. If the number is greater than or equal to 1500, the Then statement calculates 5 percent of the amount and enters the result into F12. If the number is less than 1500, the Else statement enters a zero.

Cell location: F12
Description: @IF(F11>=1500,F11*.05,0)

Formula 5: Total

Formula 5 subtracts the discount (F12) from the subtotal (F11) and enters the total into F13.

Cell location: F13
Description: +F11-F12

Formula 6: Lookup Table "Cap"

Formula 6 prevents misleading results if you happen to type an item number larger than 291. Formula 1 (the lookup formula) will signal that something is amiss by entering NA (not available) into its cell instead of $125.00, the largest corresponding number. Since AppleWorks can't retrieve text, having NA or any other text in a corresponding cell will only produce an ERROR message.

Cell location: B26
Description: @NA

This completes formula entry. Leave your cursor on B26 and press OA-S to store all the formulas on disk.

Entering Practice Numbers and Text

The practice entries are shown in FIGURE 4. Press OA-1 to jump the cursor to row 1. Enter the text in A1 and the RFQ number in F1. Then enter the quantities, items, and descriptions in rows 6 through 9. Your spreadsheet should now look like the one in FIGURE 1.

It's always a good idea to protect formulas from accidental change. Let's start with the unit and extended price formulas in columns E and F. Place your cursor on E6 and press OA-L. Now type B, press down arrow (3 times), press right arrow, Return, and type PN.

In the same way, protect the formulas that calculate the subtotal, discount, and total. Place the cursor on F11 and press OA-L. Now type B and press down arrow twice. Press Return and type PN.

The next step is to prepare for printing. Leave your cursor on F11 and press OA-O to bring up the Printer Options screen. Now set the left and top margins to position the spreadsheet on


```
======A======B=====C============D================E=========F======
 1|Quote to Bob Nissen, Nissen Brothers                    RFQ 23451
 2|=============================================================
 3|                                                  Unit      Extended
 4|  Qty    Item #    Description                    Price      Price
 5|-------------------------------------------------------------------
 6|  48       259     Phillips Screwdrivers
 7|  24       250     Crescent Wrenches
 8|  24       210     Harris Drill Sets
 9|  12       283     Cartons 20d Common Nails
10|-------------------------------------------------------------------
11|                                              Subtotal
12|                                              Discount
13|                                              Total
```

Figure 4. Practice entries in an AppleWorks quotation.

the printed page. Type LM, press Return, type .8, and press Return. Next, type TM, press Return, type 1, and press Return again. Now press OA-S. AppleWorks saves the spreadsheet, then returns you to the Review/Add/Change screen.

Turn on your printer and follow these steps to start the Print command, confirm *All*, select the printer, enter a date, and confirm one copy. Press OA-P and Return. Then press Return (or type a printer number, then Return), type today's date, and press Return (2 times). Here's your copy of the Quote spreadsheet.

How an IF Formula Works

Making an IF formula switch from one answer to the other is a good way to test its workings. Remember, your customer receives a 5 percent discount on purchases of $1500 or more, no discount for anything less. What if Nissen Brothers asked for a quote on six cartons of nails instead of 12? Place the cursor on A9, keep an eye on F12, type 6, and press Return. Presto! Because the subtotal is now under $1500, the number $92.16 that was in F12 is now $0.00. Leave the cursor on A9 and enter the original number by typing 12 and pressing Return.

Inserting Rows for More Entries

Clearly, you'll need more than four entry rows for some quotes. Let's insert three rows between rows 9 and 10. Place your cursor on A10 and press OA-I. Press Return, type 3, and press Return again. Remember when you included the lines in Formula 3? It was just for times like this. Move the cursor to F14 and look at

the contents line. AppleWorks adjusted the subtotal formula to add the entries in F13 to F5.

The next step is to copy the price formulas into the new rows. Place the cursor on E9. Press OA-C, Return, press right arrow, Return, down arrow, type a period, press down arrow (2 times), and press Return. As you did before, tell AppleWorks which cells are *No change* and which are *Relative*. Type R, press Return (2 times), and type R (2 times). The formulas in the new cells have no numbers with which to work, so NA appears. The subtotal, discount, and total formulas, because they are referring to cells containing NA, display NA too.

To see the cells come to life, enter your quantities in A10 to A12 and item numbers in B10 to B12. If an item number is less than 210 or greater than 292, NA will remain in the cell. Try that, then replace them with legitimate item numbers.

Preparing the Spreadsheet for Another Quote

Let's say you are about to prepare a quote for another customer. It's easy to just blank out the existing entries and leave the labels, formats, and formulas intact. Start with the customer and RFQ number. Press OA-1 to jump the cursor to row 1 and press OA-B. Type R and press Return.

Now blank out the quantities, item numbers, and descriptions. Place your cursor on A6 and press OA-B. Type B, press right arrow (3 times), press OA-4, then press down arrow, and Return. Now you have a clean spreadsheet awaiting the entries for the next customer.

This blanked spreadsheet is ideal to keep as a master to copy under a different file name each time you prepare a new quote. Name it QUOTEMASTER and store it on disk. Leave your cursor on A6 and press OA-N. Press right arrow (5 times), type MASTER, press Return, and press OA-S. Now you have both versions on disk, giving you a choice of blanking out QUOTE each time or renaming and using the already blanked QUOTEMASTER.

Lookup tables really make spreadsheet life simpler. They're easy to update, versatile (prices, freight charges, sales-tax percentages, and discount rates), and can contain as many items as computer memory allows. You can even have more than one table on a spreadsheet.

There are only two rules to follow in creating a lookup table: 1) The scan numbers (those a formula will look up) must be in ascending order. The corresponding numbers, though (those a formula will retrieve), may be in any order. 2) The scan cells and corresponding cells must be next to each other (no columns or rows in between).◄

Cutting and Pasting with AppleWorks

by Ruth K. Witkin

Integrate your spreadsheet price quote with an AppleWorks word-processed document.

If this part were a movie, it could be called *Rocky Hill III*, the last in a trilogy starring the Rocky Hill Hardware Supply Company. The saga that began with mailing labels and a spreadsheet now winds up with the integrated document shown in FIGURE 1.

In this episode, you compose a price quote letter, then "cut" a piece from the quotation spreadsheet and "paste" it into the letter—without scissors, tape, or staples. It's all done electronically and, yes, effortlessly. If you haven't created the spreadsheet (see "Price Quotes Made Easy," p. 9), now is a good time to do it.

The letter is a form letter you might send to any customer requesting a price quote, but there's something special about this one. AppleWorks lets you stop the printer to type information specific to each customer, which makes even a form letter look unique.

Creating the Document from Scratch

Use the Startup and Program disks to bring up a new word-processor screen. Name this file QUOTE LETTER. You should now see the Review/Add/Change screen. To avoid switching disks in midstream, slip the disk containing the QUOTE spreadsheet into the current drive. When you see such key combinations as OA-Z, hold down the open apple key and type Z.

Entering the Text

FIGURE 2 shows the text of the letter. Those gaps in the salutation and the first and last paragraphs are places where the printer pauses to let you enter information from the keyboard. The numbers at the left correspond to the line numbers that appear at the bottom of the screen as you type.

Word wraparound makes any word that can't fit at the end of a line move down to the next line automatically. You press the return key only to end a paragraph or insert a blank line between paragraphs, indicated in FIGURE 2 by dotted rectangles called *blots*. Press OA-Z to keep the blots on the screen as you work.

Now enter the text according to the instructions you see in the TABLE. Where you see *(space)*, press the space bar once. Be sure there is *only one space between characters* at that point. If you make a typo, press the delete key to back up the cursor and erase the character before it. Your cursor should be in line 1 column 1.

Check the text to make sure it agrees with FIGURE 2. If something is missing, place the insert cursor (the blinking underline) on the character to the right of the insertion. If you discover a typo, place the overtype cursor (the blinking rectangle) atop the character you want to replace. Press OA-E to switch between the cursors.

The following keys move the cursor from one place to another: the left and right arrows move the cursor one character at a time in the direction of the arrow. The down and up arrows move the cursor one line at a time. OA-left arrow and OA-right arrow hop the cursor from word to word. OA-1 to OA-9 jump the cursor vertically through the document in proportional increments.

Inserting the Printer Pauses

The next step is to tell AppleWorks where you want the printer to pause for keyboard input, indicated in FIGURE 3 by carets (^). Press OA-1 to jump the cursor to line 1 column 1. Let's start with the date. Press OA-O to bring up the Printer Options screen. Now type EK, press Return, press the escape key, and press Return again.

The cursor is now in line 2 column 1. Repeat these steps five more times to insert stops for the recipient's name, title, and address. In each case, press OA-O, type EK, and press Return. Then press Escape and Return to move to the next line down. When you finish, the cursor should be in line 7 column 1 (atop the D in Dear). Now press Return to insert a blank line.

Rocky Hill Hardware Supply Co.
5 Main Street
Abner, New York 11999

(516) 555-0505

May 1, 1986

Mr. Robert J. Nissen
Owner
Nissen Brothers, Inc.
905 Linden Mall
Abner, New York 11999

Dear Bob:

We are pleased to submit the following quote to Nissen Brothers, per your request of April 29, 1986.

We've just introduced a new Phillips screwdriver, catalog #259, to replace #256. It's stronger and has a wider grip that fits the hand remarkably well. Better yet, the price is 35 cents less per piece, a savings of $4.20 per dozen.

Qty	Item #	Description	Unit Price	Extended Price
48	259	Phillips Screwdrivers	$2.50	$120.00
24	250	Crescent Wrenches	$6.75	$162.00
24	210	Harris Drill Sets	$32.55	$781.20
12	283	Cartons 20d Common Nails	$65.00	$780.00
			Subtotal	$1,843.20
			Discount	$92.16
			Total	$1,751.04

We appreciate your business, Bob. Please call me or Ron Dugan with any questions.

Cordially,

Herb McCall

Herbert C. McCall
President

Figure 1. AppleWorks quotation spreadsheet integrated with a letter to a customer.


```
LINE
   1  Dear :⁘
   2  ⁘
   3  We are pleased to submit the following quote to , per your
   4  request of .⁘
   5  ⁘
   6  We've just introduced a new Phillips screwdriver, catalog
   7  #259, to replace #256. It's stronger and has a wider grip
   8  that fits the hand remarkably well. Better yet, the price is
   9  35 cents less per piece, a savings of $4.20 per dozen.⁘
  10  ⁘
  11  We appreciate your business, . Please call me or Ron Dugan
  12  with any questions.⁘
  13  ⁘
  14  Cordially,⁘
  15  Herbert C. McCall⁘
  16  President
```

Figure 2. Text of the customer letter created on the AppleWorks word processor.

The next stop enters a pause for the name in the salutation. Move the cursor to line 8 column 6 (atop the colon) and press OA-O, type EK, press Return, then press the escape key.

Now, in the same way, insert printer stops at the following places, the first for the company name, the second for the RFQ date, and the third for the recipient name:

Line 10 column 49 (atop the comma)
Line 11 column 12 (atop the period)
Line 18 column 30 (atop the period)

Compare your screen with FIGURE 3 to make sure the carets are in the right places.

Skipping Lines

Traditional letter spacing calls for four blank lines between the date (the first stop) and the recipient's name (the second stop). Pressing Return to insert lines is fast and easy, but use the Skip Lines feature instead. Press OA-1 to jump the cursor to line 1 column 1. Now press the down arrow key to move the cursor to line 2 column 1. The cursor is atop a caret, so you see *Enter Keyboard* at the bottom of the screen instead of the line and column numbers.

Press OA-O to bring up the Printer Options screen. Tell AppleWorks to skip four lines: Type SK, press Return, type 4, and press Return again.

```
Dear ^:

We are pleased to submit the following quote to ^, per your
request of ^.

We've just introduced a new Phillips screwdriver, catalog
#259, to replace #256. It's stronger and has a wider grip
that fits the hand remarkably well. Better yet, the price is
35 cents less per piece, a savings of $4.20 per dozen.

We appreciate your business, ^. Please call me or Ron Dugan
with any questions.
```

Figure 3. Customer letter with carets showing the printer pauses for keyboard input.

Justifying the Text

Justifying prints the text with an even right edge. You are still in the Printer Options screen, so type JU and press Return. Press the escape key to exit the Printer Options screen.

Skipping More Lines

To allow room for a signature, skip four lines after *Cordially*. Press OA-8, then down arrow twice to move the cursor to line 24 column 1. Now press OA-O, type SK, and press Return. Type 4, press Return, and press the escape key. To store the letter on disk, press OA-S.

Working with the Quotation Spreadsheet

The next step is to load the quotation spreadsheet so you can "cut and paste" it into the letter. Be sure the disk containing QUOTE is in the current drive. Return to the main menu, confirm *Add files to the Desktop* and confirm *The current disk* by pressing the escape key, then Return twice. At the *AppleWorks files* menu, press the down arrow key until the highlight is on QUOTE and press Return.

First, keep the spreadsheet header (file name and date) from printing: Press OA-O, type PH, and press Return. Press the escape key to return the spreadsheet to the screen.

Line	Action
1	Type *Dear(space):* and press Return twice to end the paragraph and insert a blank line. The cursor moves to line 3.
3	Type *We are pleased to submit the following quote to(space), per your request of(space).* Press Return twice. The cursor moves to line 6.
6	Press the space bar only once between sentences and type: *We've just introduced a new Phillips screwdriver, catalog #259, to replace #256. It's stronger and has a wider grip that fits the hand remarkably well. Better yet, the price is 35 cents less per piece, a savings of $4.20 per dozen.* Press Return twice. The cursor moves to line 11.
11	Type *We appreciate your business,(space). Please call me or Ron Dugan with any questions.* Press Return twice. The cursor moves to line 14.
14	Type *Cordially,* and press Return. The cursor moves to line 15.
15	Type *Herbert C. McCall* and press Return. The cursor moves to line 16.
16	Type *President* and don't bother to press Return. The cursor should now be in line 16 column 10.

Table. Instructions for entering form letters.

The next task is to "cut" the quote part of the spreadsheet and print it to the clipboard, which holds information destined for another file. Move the cursor to row 3 by pressing OA-2, then up arrow. Now follow these steps to start the Print command, select the *Rows* option, and highlight rows 3 to 14: Press OA-P, type R, press OA-5, down arrow, and press Return.

Tell AppleWorks to print these rows to *The clipboard (for the Word Processor)* by typing 2 and pressing Return. AppleWorks confirms that the spreadsheet is indeed on the clipboard and can now be transferred to a word-processor document. Switch to the Desktop Index and bring QUOTE LETTER to the screen: Press OA-Q, press the up arrow key, and press Return.

Press OA-7 to jump the cursor to line 20 column 1. Now "paste" the spreadsheet into the letter by pressing OA-M and typing F. Ah, sweet success—but only to a point. The standard width of the letter is too narrow for the spreadsheet, making the right column huddle at the left margin.

Formatting the Document

Reducing the left and right margins gives the spreadsheet room to spread out. Press OA-1 to jump the cursor to the top line. Press OA-O to bring up the Printer Options screen. Now

type LM, press Return, type .8, and press Return again. Type RM, press Return, type .8, and press Return.

A two-inch top margin allows room for a letterhead. You are still in the Printer Options screen, so type TM and press Return. Type 2 and press Return again. Press the escape key to return to the spreadsheet. Now press OA-6 to see the result. That's more like it. The wraparound is gone and everything is as it should be.

It's a good idea to preview the page breaks before printing to see if further changes are needed. To do this, press OA-K, press Return, and press OA-9. Uh-oh. Page 1 ends between McCall's name and his title. That will never do. The simple solution is to reduce the bottom margin. Press OA-1 to jump the cursor to the top line. Press OA-O, type BM, and press Return. Now type 1, press Return, and press the escape key.

Let's check the page break again: Press OA-K, Return, and OA-9. The Page 1 indicator shows that everything will print on one page. Press OA-S to store the document on disk.

Printing the Document

Turn on your printer and follow these steps to start the Print command, confirm *Beginning*, printer, and one copy: Press OA-P and then Return. Press Return (or type a printer number, then Return) and press Return again.

Entering Information from the Keyboard

The printer pauses, awaiting input from the keyboard. Take your time, and if you mistype anything before pressing Return, the delete key backs up the cursor.

Now type MAY 1, 1986 and press Return. The printer pauses again. Type MR. ROBERT J. NISSEN and press Return. At each pause, type an entry and press Return until you type in all of the following entries: OWNER, NISSEN BROTHERS, INC., 905 LINDEN MALL, ABNER, NEW YORK 11999, BOB, NISSEN BROTHERS, APRIL 29, 1986, BOB. Your letter should now look like the one in FIGURE 1.◄

Price-Volume Analysis

by Ruth K. Witkin

What's the best selling price? Find out with price-volume analysis and your AppleWorks spreadsheet.

Highest price equals greatest profit—right? Well, not necessarily. If your price is too high, sales volume can plummet. If you set too low a price, you may sell in greater quantity but not cover your costs. Price-volume analysis can help you strike the right balance.

Let's suppose you run the Johnson Toy Manufacturing Company. Your latest product is a programmable rubber duck. You expect strong interest in the marketplace. But what's the best selling price?

FIGURE 1 shows the price-volume spreadsheet. The numbers in rows 3 to 8 are your "what-if" playground. When you enter the fixed and variable costs of the duck, a starting price, starting volume, price increase, and how much that price increase reduces volume, the formulas calculate the volume, fixed costs per unit, total variable costs, sales income, total profit, and profit per unit in each of four price-volume tests.

In this session, you use the Window command, which lets you keep two distant areas of a spreadsheet on screen at the same time. While you work in one window, you can view the results in the other.

A Spreadsheet from Scratch

When you see such key combinations as OA-L, hold down the open apple key and type L. If you make a typo, press the delete key to back up the cursor and erase.

If you save to disk with a one-drive system, watch the screen for prompts that tell you when to swap the Program disk for the data disk.

	A	B	C	D	E
1		PRICE-VOLUME ANALYSIS			
2					
3	Selling Price per Unit	22.75			
4	Selling Price Increase	1.00			
5	Volume in Units	12,000			
6	Volume Decrease	650			
7	Total Fixed Costs	26,500			
8	Variable Costs per Unit	7.50			
9					
10	Price-Volume Calculations	Test 1	Test 2	Test 3	Test 4
11					
12	Selling Price per Unit	22.75	23.75	24.75	25.75
13	Volume in Units	12,000	11,350	10,700	10,050
14	Fixed Costs per Unit	2.21	2.33	2.48	2.64
15	Total Fixed Costs	26,500	26,500	26,500	26,500
16	Total Variable Costs	90,000	85,125	80,250	75,375
17					
18	Sales Income	273,000	269,562	264,825	258,788
19	Cost of Goods Sold	116,500	111,625	106,750	101,875
20		---------	---------	---------	---------
21	Total Profit	156,500	157,938	158,075	156,912
22	Profit per Unit	13.04	13.92	14.77	15.61
23					

Figure 1. AppleWorks spreadsheet used for price-volume analysis.

Use the AppleWorks Startup and Program disks to bring up a new spreadsheet screen. Name this file PV ANALYSIS. You should now see the Review/Add/Change screen.

Dashed lines make a spreadsheet easier to read. But putting several lines across many columns can be tedious. A simple technique is to enter one line and use the clipboard to enter the rest. Here's how to do it:

First, enter a line across row 2: Place the cursor on A2 and type quotation marks. Now hold down the equal-sign key until the sign reaches the right edge of E2. Press Return.

Now copy row 2 to the clipboard. Leave the cursor on A2 and press OA-C, type T, and press Return. Next, copy the row from the clipboard and insert it before row 9: Place the cursor on A9, press OA-C, and type F. You can't see it now because the spreadsheet is empty, but you just inserted a whole new row.

And finally, insert a row before row 23: Place the cursor on A23, press OA-C, and type F.

Use a minus sign to enter the line in row 11: Place the cursor on A11, type quotation marks, hold down the minus-sign key until the sign reaches the right edge of E11, and press Return.

	A	B	C	D	E
1		PRICE-VOLUME ANALYSIS			
2					
3	Selling Price per Unit				
4	Selling Price Increase				
5	Volume in Units				
6	Volume Decrease				
7	Total Fixed Costs				
8	Variable Costs per Unit				
9					
10	Price-Volume Calculations	Test 1	Test 2	Test 3	Test 4
11					
12	Selling Price per Unit				
13	Volume in Units				
14	Fixed Costs per Unit				
15	Total Fixed Costs				
16	Total Variable Costs				
17					
18	Sales Income				
19	Cost of Goods Sold				
20		---------			
21	Total Profit				
22	Profit per Unit				
23					

Figure 2. Labels and lines in an AppleWorks price-volume analysis spreadsheet.

Use the following summary to set up the rest of the spreadsheet so that it looks like the one in FIGURE 2:

Column Widths. Each column is now nine characters wide. Use the Layout command (OA-L) to increase the width of column A by 17 characters and columns B–E by two each.

Labels. Enter the spreadsheet title in B1, the labels in column A, and the Test labels in B10 to E10. Use OA-L to right-justify the Test labels.

Numbers. Most of the numbers are dollar amounts, but dollar signs often crowd a spreadsheet. Instead, use the Value command (OA-V) to set a standard value of Commas with zero decimal places. Then use OA-L to put the following cells into a Commas format with two decimal places: B3 and B4, B8, B12 and C12, B14, and B22. The format is copied into the other cells when you copy the formulas.

Short Line. In B20, type quotation marks, press the space bar, type nine minus signs, and press Return. This line is also copied into the other columns with the formulas.

Now press OA-S to save.

FIGURE 3 shows the formula locations. First, read how the formula works. Then place the cursor on the cell receiving the

	A	B	C	D	E
1		PRICE-VOLUME ANALYSIS			
2					
3	Selling Price per Unit				
4	Selling Price Increase				
5	Volume in Units				
6	Volume Decrease				
7	Total Fixed Costs				
8	Variable Costs per Unit				
9					
10	Price-Volume Calculations	Test 1	Test 2	Test 3	Test 4
11					
12	Selling Price per Unit	0.00 (1)	0.00 (10)	0.00	0.00
13	Volume in Units	0 (2)	0 (11)	0	0
14	Fixed Costs per Unit	ERROR (3)	ERROR	ERROR	ERROR
15	Total Fixed Costs	0 (4)	0	0	0
16	Total Variable Costs	0 (5)	0	0	0
17					
18	Sales Income	0 (6)	0	0	0
19	Cost of Goods Sold	0 (7)	0	0	0
20		---------	---------	---------	---------
21	Total Profit	0 (8)	0	0	0
22	Profit per Unit	ERROR (9)	ERROR	ERROR	ERROR
23					

Figure 3. AppleWorks price-volume analysis spreadsheet showing formula locations.

formula. Move the cursor to the cell locations shown in the formula description and type everything else. When the formula is complete, press Return. If you have a problem building a formula, press the escape key and start again.

Formula 1: Selling Price per Unit (Test 1)

Formula 1 doesn't calculate anything. It just copies the number from B3 into B12, the selling price per unit in Test 1.

Cell location: B12
Description: +B3

Formula 1 has no numbers with which to work, so zeros appear.

Formula 2: Volume in Units (Test 1)

Formula 2 works the same as Formula 1, this time copying the volume in units from B5 into B13.

Cell location: B13
Description: +B5

Formula 3: Fixed Costs per Unit

Formula 3 divides the total fixed costs (B7) by the volume in units (B13) and enters the fixed costs per unit in B14.

Cell location: B14
Description: +B7/B13

	A	B	C	D	E
1		PRICE-VOLUME ANALYSIS			
2					
3	Selling Price per Unit	22.75			
4	Selling Price Increase	1			
5	Volume in Units	12000			
6	Volume Decrease	650			
7	Total Fixed Costs	26500			
8	Variable Costs per Unit	7.5			
9					
10	Price-Volume Calculations	Test 1	Test 2	Test 3	Test 4
11					
12	Selling Price per Unit				
13	Volume in Units				
14	Fixed Costs per Unit				
15	Total Fixed Costs				
16	Total Variable Costs				
17					
18	Sales Income				
19	Cost of Goods Sold				
20		---------	---------	---------	---------
21	Total Profit				
22	Profit per Unit				
23					

Figure 4. Practice entries in an AppleWorks price-volume analysis spreadsheet.

You asked Formula 3 to divide by zero, which it cannot do, so ERROR appears and will remain until you enter the practice numbers.

Formula 4: Total Fixed Costs

Formula 4 copies the total fixed costs from B7 to B15.

Cell location: B15
Description: +B7

Formula 5: Total Variable Costs

Formula 5 multiplies the variable costs per unit (B8) by the volume in units (B13) and enters the total variable costs in B16.

Cell location: B16
Description: +B8*B13

Formula 6: Sales Income

Formula 6 multiplies the selling price per unit (B12) by the volume in units (B13) to produce the sales income (B18).

Cell location: B18
Description: +B12*B13

Formula 7: Cost of Goods Sold

Formula 7 adds the total fixed costs (B15) and total variable costs (B16) to produce the cost of goods sold (B19).

Cell location: B19
Description: +B15+B16

Formula 8: Total Profit

Formula 8 subtracts the cost of goods sold (B19) from the sales income (B18) to produce the total profit (B21).

Cell location: B21
Description: +B18−B19

Formula 9: Profit per Unit

Formula 9 divides the total profit (B21) by the volume in units (B13) to produce the profit per unit (B22).

Cell location: B22
Description: +B21/B13

ERROR appears because you are again asking a formula to divide by zero.

Formula 10: Selling Price per Unit (Test 2)

Formula 10 increases the selling price in Test 2 (C12) by the amount in B4 and enters the result in C12.

Cell location: C12
Description: +B12+B4

Formula 11: Volume in Units (Test 2)

Formula 11 decreases the volume in Test 2 (C13) by the amount in B6 and enters the result in C13.

Cell location: C13
Description: +B13−B6

Copying Formulas 10 and 11

Formulas 10 and 11 can calculate the selling price and volume in Tests 3 and 4. Follow these steps to start the Copy command, confirm *Within worksheet*, highlight C12 and C13 (the cells from which to copy), and tell AppleWorks to copy into D12 and E12: Place your cursor on C12 and press OA-C. Now press Return, press the down arrow key, and press Return again. Press right arrow, type a period, press right arrow, and press Return.

AppleWorks highlights B12 and asks if it is a *No change* or *Relative* reference. To select *No change*, you press Return; to select *Relative*, you type R. To identify B12 as relative, type R. In turn,

as the other cells are highlighted, press Return, type R, and press Return again.

Copying Formulas 3 to 9

The next step is to copy Formulas 3 to 9 (B14 to B22) and the line in B20 into Tests 2, 3, and 4. Place the cursor on B14 and press OA-C. Now press Return, press OA-9, and press Return again. Press the right arrow key, type a period, press OA-right arrow, and press Return.

AppleWorks now asks if B7 is *No change* or *Relative*. It's *No change*, so press Return. As the other cells are highlighted, follow this sequence to tell AppleWorks which cell reference is which: Type R, press Return twice, and type R (9 times). This completes the formulas. Press OA-S to store the spreadsheet on disk.

FIGURE 4 shows the practice numbers. The total fixed costs of this product, $26,500, and the variable costs per unit, $7.50, are facts that come from financial reports.

Press OA-2 to jump the cursor to B3. Type 22.75 and press the down arrow key. Type the other numbers in B4 to B8 and press the down arrow key after each one. Because of the formatting you did earlier, AppleWorks produces the commas and decimal places. Your spreadsheet should now look like the one in FIGURE 1. These results are interesting. Though Test 4 shows the highest profit per unit, the pairing of price and volume in Test 3 shows the greatest profit potential. To protect the formulas against change, press OA-5 to jump the cursor to row 12. It should be on B12. Press OA-L. Type B, press OA-8, then press down arrow twice. Press OA-right arrow, press Return, and type PN.

Next, prepare the spreadsheet for printing. Leave your cursor on B12. Follow these steps to bring up the Printer Options screen and set the left margin so the spreadsheet is centered: Press OA-O, type LM, press Return, type .5, and press Return.

Now press OA-S to save the spreadsheet and return to the Review/Add/Change screen. Turn on your printer and follow these steps to start the Print command, confirm *All*, select the printer, enter a date, and confirm one copy: Press OA-P, press Return, press Return (or type a printer number, then Return), type today's date, and press Return twice.

When you work with the "what if's," you can't see the effect on profits unless you move the cursor to row 22. But when you move it to row 22, you can't work with the "what if's." Opening another window solves the dilemma. Here's how to do it:

First, press OA-1 to jump the cursor to row 1. You want rows 3 to 8 and rows 21 and 22 on the screen at the same time. Use the down arrow key to move the cursor to row 20. Row 3 should now be at the top.

Now place the cursor on row 9. Start the Window command and select *Top and bottom* by pressing OA-W and typing T. Move the cursor to B22. Both areas are on screen.

Press OA-J to jump the cursor into the top window. Change any numbers in B3 through B8 and watch the formulas go to work. When you're finished, close the second window: Leave your cursor where it is, press OA-W, then press Return. If you save the spreadsheet with a second window, it will have the window in place the next time you load it. The printed spreadsheet, however, won't show even a trace of another window.◄

Working with a Customer Data Base—Part 1

by Ruth K. Witkin

Each customer is vitally important. This data base helps you stay in touch.

Murphy Vending installs small vending machines (the ones that dispense gumballs, candy, toys, and trinkets) in high-traffic locations, mainly supermarket, discount, and variety chain stores. The arrangement works well on both sides—Murphy gets the floor space, the store gets a share of the profits. Each customer is vitally important. A loss of even one chain store can mean the loss of many outlets.

Let's pretend you're Larry Murphy. In this session, the first of three parts, you enter categories and records into a customer data base, change the layout of the multiple-record screen, create a report format for the master account list shown in FIGURE 1, view the list on screen, select records from the list, and print the list. This data base helps you stay in touch with your customers, analyze sales, and generate mailing labels for marketing material.

Keystrokes and Other Matters

When you see such key combinations as OA-Y, hold down the open apple key and type Y. With repeated combinations, such as OA-left arrow (11 times), hold down the open apple key, and press the left arrow key 11 times.

You'll be working with the insert cursor—the blinking underline—until the instructions say otherwise. If you make a typo, press Delete to back up the cursor and erase the character.

Several times during the creation process, I'll ask you to save the data base. If you have a one-drive system, watch the screen for prompts that tell you when to swap the Program disk for the data disk.

File: CUSTOMERS
Report: MASTER ACCOUNT LIST

Page 1
8-23-86

ACC#	COMPANY	STREET	CITY	STA	ZIP	PHONE	CONTACT	B#
179	Ace Supermarkets	72 Harrison	Concord	CT	06623	203-555-4560	Gil Freeman	1
85	Allied Grocers	52-A William St.	Hillsburg	NY	14107	518-555-0787	Evelyn Aven	1
153	American Stores	333 Sheffield St.	Stoville	NY	11456	516-555-8765	Ollie O'Day	2
142	Arbor Sales Co.	567 12th St.	Lincoln	NJ	08904	201-555-2300	Ben W. Smith	3
43	Crown Supermarts	105 Columbus Ave.	Boston	MA	02110	617-555-0220	Homer Capella	1
56	Dollar Shops Inc.	12 Elman St.	Miami	FL	33110	305-555-0600	Don Johnson	3
87	Family Centers	123 Apple Square	Ellsworth	NJ	07215	609-555-9876	Fay L. Byrd	2
22	Key Markets	5 Grand Ave.	Tandy	MD	20643	301-555-2621	Ken Wolin	1
63	Off The Shelf, Inc.	90 Adams St.	Addison	CT	06520	203-555-9008	Connie Dowd	3

Figure 1. Master Account List created with the customer data base.

Creating the Data Base from Scratch

Use the AppleWorks Startup and Program disks to bring up a new data-base screen. Name this file CUSTOMERS. You should now see the Change Name/Category screen.

This data base contains 15 categories, two of which are spares—dubbed, aptly enough, SPARE. It's a good idea to have at least one in every data base. If you later want to enter another category, you can just type over SPARE with a different name and make your entries. Without a spare, you'll have to insert a category, which will wipe out any custom screen layouts and report formats.

Here's what the category abbreviations stand for: ACC# is account number, B# is the code number for the company's type of business, LYTD$ is last year-to-date sales, and YTD$ is current year-to-date sales.

First enter the category names. The cursor is on the *C* in *Category 1*. Press OA-Y to erase these words. Now type in the following category names (be sure to press the return key after each one): ACC#, COMPANY, STREET, CITY, STATE, ZIP, CONTACT, TITLE, BUSINESS, B#, LYTD$, YTD$, SPARE, and SPARE.

Check to make sure that every category is entered and spelled correctly. If one's missing, place the cursor on the category name immediately below the spot where the missing one belongs, press OA-I to insert a blank line, type the category name, press OA-Y to delete the dash at the end, and press Return.

Press OA-S to store the data base on disk. AppleWorks now automatically goes into the Insert New Records mode. Press the space bar or the return key, and Record 1 appears with all the categories awaiting your entries.

Inserting New Records

FIGURE 2 shows the entries in Records 1 to 9. The B# category identifies the customer's type of business: 1 is a food chain, 2 is a variety chain, and 3 is a discount chain. These numbers serve the same purpose as the description in the BUSINESS category, but take up less room on a report.

Setting a Standard Value

A standard value is an entry that's common to most or all of the records. The contact person in six of the nine records is president of the company, which qualifies *President* as a standard value. Press the down arrow key (8 times) to move the cursor to the TITLE category. To set the standard, press OA-V, type PRESIDENT, and press Return. Press the escape key to return to Record 1, which now shows President in the TITLE category.

Making Entries in the Records

Press the up arrow key (9 times) to return to the ACC# category. Now enter the rest of the information in Record 1: Type 87 and press Return. Type FAMILY CENTERS and press Return. Type 123 APPLE SQUARE and press Return. Refer to FIGURE 2, and continue typing the entries in Record 1, pressing the return key after each one. After the contact name, press Return twice to skip past the *President* entry. After you type 11070 in the YTD$ category, press Return, then OA-down arrow to bring up Record 2.

Now fill Records 2 to 9. Before you start, however, take a few moments to read the following instructions:

Record 3: The contact's title in Record 3 is *VP, Operations*, not *President*. When you get to this entry, press OA-E to switch to the overtype cursor (a blinking rectangle) and type VP, OPERATIONS over *President*. Leave the overtype cursor activated.

Record 4: American Stores is a new customer, so there's no sales figure for last year. To skip past the LYTD$ category, press Return twice after you type the business code.

Records 5 and 6: Type over the standard *President* with the title shown in FIGURE 2.

Now enter the information in Records 2 to 9 as you did in Record 1. When you're finished, the cursor should be in the first SPARE category in Record 9. Press OA-S to store the data base on disk.

Changing the Screen Layout

The first five categories in all the records should now be on screen. If they're not, press OA-1. Some entries (company and street) are truncated, while others (account number, state, and zip) have more room than they need. AppleWorks makes it easy to change the column widths so that you can see the complete entry and fit more categories on the screen.

Press OA-L to bring up the Change Record Layout screen. Let's start by reducing the width of the ACC# category: Press OA-left arrow (11 times). Now press the right arrow key to move the cursor to each of the following categories and adjust the column width in the same way:

COMPANY: press OA-right arrow (5 times)
STREET: press OA-right arrow (2 times)
CITY: press OA-left arrow (5 times)
STATE: press OA-left arrow (12 times)
ZIP: press OA-left arrow (8 times)

Now press the escape key. AppleWorks asks which way the cursor should travel when you press Return. The standard *Down* is fine, so press the return key. The Review/Add/Change screen returns with seven categories nicely spaced.

It makes more sense to arrange your records alphabetically by company name instead of randomly as you entered them. Press the tab key to move the cursor to the COMPANY category. Now press OA-A. AppleWorks proposes *From A to Z*, which is what you want, so press Return.

Creating a Report Format

Next, create a report format for the master account list. Press OA-P to start the Print command, and follow these steps to create a new tables format and give the report a name: Press Return, type MASTER ACCOUNT LIST, and press the return key again. The Report Format screen appears with commands, cursor movements, the first three entries in the first six categories, and part of a seventh category on the right.

CATEGORY	RECORD 1	RECORD 2	RECORD 3
ACC#:	87	43	179
COMPANY:	Family Centers	Crown Supermarts	Ace Supermarkets
STREET:	123 Apple Square	105 Columbus Ave.	72 Harrison
CITY:	Ellsworth	Boston	Concord
STATE:	NJ	MA	CT
ZIP:	07215	02110	06623
PHONE:	609-555-9876	617-555-0220	203-555-4560
CONTACT:	Fay L. Byrd	Homer Capella	Gil Freeman
TITLE:	President	President	VP, Operations
BUSINESS:	Variety	Food	Food
B#:	2	1	1
LYTD$:	12564	19517	33722
YTD$:	11070	18203	35999
SPARE:			
SPARE:			

CATEGORY	RECORD 4	RECORD 5	RECORD 6
ACC#:	153	142	85
COMPANY:	American Stores	Arbor Sales Co.	Allied Grocers
STREET:	333 Sheffield St.	567 12th St.	52-A William St.
CITY:	Stoville	Lincoln	Hillsburg
STATE:	NY	NJ	NY
ZIP:	11456	08904	14107
PHONE:	516-555-8765	201-555-2300	518-555-0787
CONTACT:	Ollie O'Day	Ben W. Smith	Evelyn Aven
TITLE:	President	Purchasing Agent	VP, Purchasing
BUSINESS:	Variety	Discount	Food
B#:	2	3	1
LYTD$:		28560	32100
YTD$:	9321	32742	32645
SPARE:			
SPARE:			

CATEGORY	RECORD 7	RECORD 8	RECORD 9
ACC#:	56	22	63
COMPANY:	Dollar Shops Inc.	Key Markets	Off The Shelf, Inc.
STREET:	12 Elman St.	5 Grand Ave.	90 Adams St.
CITY:	Miami	Tandy	Addison
STATE:	FL	MD	CT
ZIP:	33110	20643	06520
PHONE:	305-555-0600	301-555-2621	203-555-9008
CONTACT:	Don Johnson	Ken Wolin	Connie Dowd
TITLE:	President	President	President
BUSINESS:	Discount	Food	Discount
B#:	3	1	3
LYTD$:	30450	10987	25000
YTD$:	32345	13450	28567
SPARE:			
SPARE:			

Figure 2. Records 1 to 9 in an AppleWorks customer data base.

It would be great to print every category, but there's a limit to the number that can fit across a page. This report, therefore, contains only the account number, company name, street, city, state, zip, phone, contact, and business code. The other categories—title, business, last year-to-date, year-to-date, and both spares—are deleted. You can reinsert these deleted categories at any time.

So that you can see the categories you're deleting, press the right arrow key 14 times, then the left arrow key six times. Your cursor should be in the TITLE column. Now delete unnecessary categories: Press OA-D twice, press the right arrow key, and press OA-D (4 times). The cursor is now on *Len117*, the print width of the remaining categories.

The plan is to print this report at 12 characters per inch, which allows for an estimated 96 characters per line. To produce the proper spacing, you need to make some columns wider, others narrower. Hold down the left arrow key to move the cursor to column A (ACC#). To reduce the width, press OA-left arrow (8 times). Press the right arrow key to move to each column (except CONTACT, which remains as is for now) and adjust the width as follows:

COMPANY: press OA-right arrow (7 times)
STREET: press OA-right arrow (5 times)
CITY: press OA-left arrow (2 times)
STATE: press OA-left arrow (9 times)
ZIP: press OA-left arrow (5 times)
PHONE: press OA-right arrow (1 time)
B#: press OA-left arrow (10 times)

The print-width indicator should now read *Len96*.

Let's prepare for printing. Press OA-O to bring up the Printer Options screen. Set the character size and top margin, and tell AppleWorks you want the report double spaced: Type CI and press Return. Type 12 and press Return. Next, type TM and press Return. Type .5 and press Return. And finally, type DS and press the return key again. Now press the escape key to return to the Report Format screen.

To get an idea of what this report will look like on paper, display it on screen first: Press OA-P, type 2, and press the return key twice. Here are the first seven categories of the first seven records. Press the return key again, and the last two records

appear. Press the return key again to return to the Report Format screen.

Printing the Report

It's printing time, so turn on your printer. Press OA-P to start the Print command, and follow these steps to print one copy of the report: Type a printer number and press Return, type today's date, and press the return key twice.

When the printer stops, take a close look at the contact name in the Crown Supermarts record. The last *a* in *Capella*, which you couldn't see on screen, is missing. Compare the right edge of the date in the header with the B# category—it's a clue. Although the Printer Options screen says you can print an estimated 96 characters at 12 characters per inch, it's clear that AppleWorks can print 97 characters—a good thing to know if you need a tad more room.

Move the cursor to the CONTACT column and increase its width by pressing the OA-right arrow key once. The indicator now shows *Len97*. Print the report again by pressing OA-P and the return key (3 times). Perfect. Press OA-S to store your work on disk. Saving the data base brings back the Review/Add/Change screen.

Selecting Records for Printing

Let's suppose you want to send a list of New Jersey customers to your local branch office. First, return to the Report Format screen: Press OA-P and press the return key twice. Leave the cursor in the ACC# column.

Next, tell AppleWorks you want to select the records by state: Press OA-R, type 5, and press the return key. The screen now shows 12 selection criteria. The highlight is on *equals*, which is what you want, so press the return key again. You now need to specify the comparison information. Type NJ and press Return. The third line at the top left of the screen shows *STATE equals NJ*. AppleWorks now asks if you have any other comparison information. You don't, so press the escape key.

You're all set to print the selected records. Press OA-P and the return key (3 times). And here's the report on Arbor Sales and Family Centers. To return the selection to all records, press OA-R and type Y. That's all there is to it.

Though the temptation may be great, don't change anything in this data base. In Part 2, when you create reports that do calculations, you'll want everything exactly as is. (You can, of course, give the data base a different file name and play around with that one.)◄

Working with a Customer Data Base—Part 2

by Ruth K. Witkin

These reports can highlight salespeople who are real producers and those who are marginal.

In Part 1 of this three-part series, you created a customer data base and printed a master account list. In this session, you use that data base to produce two reports that contain calculations. The first, shown in FIGURE 1, adds the sales for two years and, in a calculated category, prints the difference by customer. The other, shown in FIGURE 2, groups sales by salesperson and produces the totals. These types of reports can highlight salespeople who are real producers and those who are marginal. In the next session (see "Converting a Data-Base Report to a Spreadsheet," p. 48), I'll explain how to convert your sales-to-date report to a spreadsheet with which AppleWorks performs calculations that aren't available in the data base.

Creating the Sales-to-Date Report

Start up the AppleWorks program and load your CUSTOMERS file. When the Review/Add/Change screen appears, you should see nine records in the multiple-record layout.

First create a format for the sales-to-date report shown in FIGURE 1. Press OA-P to start the Print command. To select *Create a new "tables" format* and name the new report, type 2, press the return key, type SALES-TO-DATE, and press the return key again.

Only the account number, company name, state, business, last year-to-date, year-to-date, and contact categories are needed in this report. Follow these steps to delete the other categories, starting with STREET and CITY: Press the right arrow key twice and press OA-D twice. For the ZIP and PHONE categories, press the right arrow key and press OA-D twice. Press the right arrow key to move the cursor to the TITLE category and press OA-D again. Press the right arrow key to move the cursor to the B# category and press OA-D. Now press the right arrow key twice to

File: CUSTOMERS
Report: SALES-TO-DATE

Page 1
9-23-86

ACC	COMPANY	STAT	BUSINESS	LYTD$	YTD$	DIFF$	CONTACT
179	Ace Supermarkets	CT	Food	33722	35999	2277	Gil Freeman
85	Allied Grocers	NY	Food	32100	32645	545	Evelyn Aven
153	American Stores	NY	Variety	0	9321	9321	Ollie O'Day
142	Arbor Sales Co.	NJ	Discount	28560	32742	4182	Ben W. Smith
43	Crown Supermarts	MA	Food	19517	18203	-1314	Homer Capella
56	Dollar Shops Inc.	FL	Discount	30450	32345	1895	Don Johnson
87	Family Centers	NJ	Variety	12564	11070	-1494	Fay L. Byrd
22	Key Markets	MD	Food	10987	13450	2463	Ken Wolin
63	Off The Shelf, Inc.	CT	Discount	25000	28567	3567	Connie Dowd
				192900*	214342*	21442*	

Figure 1. Sales-to-date report created with the AppleWorks customer data base.

move the cursor to the first SPARE category and delete both spares by pressing OA-D twice. The cursor is now on *Len91*, the print width of the remaining categories.

The next step is to switch the contact names from the middle of this report to a less prominent place. Press the left arrow key four times to move the cursor to the CONTACT category. Now hop the CONTACT category past the other categories and into the right-most column by pressing OA-> three times.

The AppleWorks standard of ten characters to the inch prints an estimated 80 characters per line. You'll have to pare some categories and widen others, and later we'll insert a calculated category. Still, 80 characters seems to be a reasonable goal. The cursor is on the CONTACT column. Increase its width one character by pressing OA-right arrow. Use the left arrow key to move the cursor to the other columns and change their widths as follows:

YTD$: press OA-left arrow (4 times)
LYTD$: press OA-left arrow (4 times)
BUSINESS: press OA-left arrow (3 times)
STATE: press OA-left arrow (8 times)
COMPANY: press OA-right arrow (7 times)
ACC#: press OA-left arrow (8 times)

The print-width indicator should now read *Len72*.

File: CUSTOMERS
Report: SALES BY REP

Page 1
9-23-86

ACC	COMPANY	STAT	BUSINESS	LYTD$	YTD$	DIFF$	REP	CONTACT
179	Ace Supermarkets	CT	Food	33722	35999	2277	CS	Gil Freeman
43	Crown Supermarts	MA	Food	19517	18203	-1314	CS	Homer Capella
63	Off The Shelf, Inc.	CT	Discount	25000	28567	3567	CS	Connie Dowd
				78239	82769	4530		
85	Allied Grocers	NY	Food	32100	32645	545	RJN	Evelyn Aven
153	American Stores	NY	Variety	0	9321	9321	RJN	Ollie O'Day
142	Arbor Sales Co.	NJ	Discount	28560	32742	4182	RJN	Ben W. Smith
87	Family Centers	NJ	Variety	12564	11070	-1494	RJN	Fay L. Byrd
				73224	85778	12554		
56	Dollar Shops Inc.	FL	Discount	30450	32345	1895	RKW	Don Johnson
22	Key Markets	MD	Food	10987	13450	2463	RKW	Ken Wolin
				41437	45795	4358		
				192900*	214342*	21442*		

Figure 2. AppleWorks sales-to-date report containing group totals by salesperson.

The account numbers in column A have an unsightly jog at the right edge. To improve their appearance, right-justify them: Press OA-J, press Return to confirm zero decimal places, type 2 to specify the number of blank spaces between categories, and press the return key again. The trio of nines that appear confirms the justification. They won't print on the report.

Adding the Numbers in a Category

This is a financial report, so you need totals for last year's and this year's sales. Press the right arrow key four times to move the cursor to the LYTD$ category. Press OA-T to start the Totals command. Confirm zero decimal places and three blank spaces after the category by pressing the return key twice. The nines and the lines indicate that these entries are totalled. Now do the same for the YTD$ category: Press the right arrow key, press OA-T, and press the return key twice.

Inserting a Calculated Category

Subtracting LYTD$ from YTD$ for each customer makes it easy to compare one year with the other. This is done in a calculated category, which exists only in the report in which it's

File: CUSTOMERS
Report: NOTES

Page 1
9-23-86

ACC#	COMPANY	B#	STAT	PHONE	CONTACT	REP	NOTES
179	Ace Supermarkets	1	CT	203-555-4560	Gil Freeman	CS	Freeman promoted to Pres eff 1/1/87
85	Allied Grocers	1	NY	518-555-0787	Evelyn Aven	RJN	Contact again Oct 14
153	American Stores	2	NY	516-555-8765	Ollie O'Day	RJN	O'Day's daughter running the show
142	Arbor Sales Co.	3	NJ	201-555-2300	Ben W. Smith	RJN	Moving to larger place in November
43	Crown Supermarts	1	MA	617-555-0220	Homer Capella	CS	Selling out to Superior Supermarkets
56	Dollar Shops Inc.	3	FL	305-555-0600	Don Johnson	RKW	Aggressive marketing - growing fast
87	Family Centers	2	NJ	609-555-9876	Fay L. Byrd	RJN	Place looks rundown
22	Key Markets	1	MD	301-555-2621	Ken Wolin	RKW	-
63	Off The Shelf, Inc.	3	CT	203-555-9008	Connie Dowd	CS	Opening 2 new stores - contact in Dec

Figure 3. Another AppleWorks report you can create with the customer data base, containing notes gathered by the sales representatives.

created. Insert this category to the left of column G and name it DIFF$, meaning dollar difference. First, press the right arrow key to move the cursor to column G. Now press OA-K to start the Calculate command. Replace *Calculated* by pressing OA-Y, typing DIFF$, and pressing Return.

AppleWorks now asks for the calculation rules. You want to subtract each entry in column E from the corresponding entry in column F, show the result without decimal places, and insert three spaces between columns G and H, so type F-E and press the return key three times. Have AppleWorks print the total dollar difference, too. Your cursor is in column G, so press OA-T and press the return key twice.

To see how these changes affect the print width, press the right arrow key twice. The indicator shows *Len85*, five characters more than the goal of 80 characters. Clearly, the DIFF$ column can be reduced by five characters. A print width of 80 characters at ten characters per inch is not always a magic number. In this case, 81 characters works perfectly well. Decrease the DIFF$ column by four characters by pressing the left arrow key twice and the OA-left arrow keys four times.

Printing Year-to-Date Sales

Press OA-O to bring up the Printer Options screen. Now follow these steps to increase the top margin and double-space the report:

Type TM and press Return. Type .5 and press Return. Type DS and press Return. Next, tell AppleWorks to print a zero when there's no entry in a category, such as last year's sales for American Stores, a new customer: Type PD and press Return. If a category isn't totalled, AppleWorks prints a dash instead. Press Escape to return to the Report Format screen.

This report format is complete, so turn on your printer and press OA-P. Press Return to confirm the printer (or type a printer number, then Return), type today's date, and press Return twice. When the printer stops, your report should look like the one in FIGURE 1. This time last year, the company had $192,900 in sales; this year, $214,342—an increase of $21,442. Press OA-S to store the report on disk, which brings up the Review/Add/Change screen.

Year-to-Date Sales by Salesperson

Imagine a report that shows both total sales and sales by salesperson. Only one hitch—there's no salesperson category. If you had to insert a category now, your custom screen layout would revert to standard, and the formats for your master account list and sales-to-date report would vanish. This is when a spare category really comes in handy. FIGURE 2 shows the new report.

Press OA-N to bring up the Change Name/Category screen. Now press the return key to jump the cursor into the category names area. Press the down arrow key 13 times to move the cursor to the first SPARE. Press OA-E to switch to the overtype cursor. Now type REP, press OA-Y to delete the E, and press Return. Press the escape key.

The Review/Add/Change screen returns, but without the REP category, which is off screen. You could enter each rep's initials in the single-record layout, but there's an easier way—just move the REP category on screen and make the entries there. First, press OA-L to start the Layout command. Now press the right arrow key 13 times, press OA-< seven times, press the escape key, then Return. And here's the REP category awaiting your entries.

Dittoing the Previous Entry

Murphy Vending's three reps are CS, RJN, and RKW. One of the advantages of making entries in the multiple-record layout is

that you can "ditto" the previous entry. First, press Tab six times to move the cursor to the REP column. Now enter the initials as follows:

Type CS (press return)
Type RJN (press return)
Press OA-" (2 times)
Type CS (press return)
Type RKW (press return)
Type RJN (press return)
Type RKW (press return)
Type CS (press return)

Now reverse the process to return the REP category to its position off screen. Press OA-L to start the Layout command. Press the right arrow key six times to move the cursor to the REP category, and press OA-> seven times. Press the escape key, then the return key. The screen appears as it was before you switched categories.

Duplicating a Report Format

The group-sales and sales-to-date reports have a great deal in common—categories, column widths, top margin, and line spacing. The easy approach is to duplicate the report format. Press OA-P to bring up the Report Menu.

Now select *Duplicate an existing format* by typing 4 and pressing the return key. Select SALES-TO-DATE by typing 2 and pressing the return key again. You should still be working with the overtype cursor. Press the right arrow key five times, press the space bar, type BY REP, press OA-Y to delete E, and press the return key again.

Now you insert the REP category, which you deleted when it was a spare: Press the right arrow key seven times to move the cursor to column H. Press OA-I to bring up the Insert a Category screen, where the deleted categories are stored. Type 7 to select REP and press Return. Now press OA-left arrow seven times to reduce the column width.

Calculating Group Totals

A simple two-step process produces the group totals. The first step arranges the REP entries in alphabetical order, which groups the customers by salesperson: Leave the cursor in column H, press OA-A, and press Return.

The second step produces the total sales by salesperson and tells AppleWorks to print all the records on one page: Leave your cursor on column H, press OA-G, and press Return twice. The upper left of the screen shows that group totals will indeed be calculated in the REP column.

Press the right arrow key twice so that you can see the *Len* indicator. Inserting the REP category increased the print width to 87 characters, more than you can print at ten characters per inch. The simple solution is to print at 12 characters per inch. Press OA-O. Now type CI and press Return. Type 12 and press the return key again. To center the report on the page, increase the left and right margins: Type LM and press Return. Type .4 and press Return again. Type RM and press Return. Type .4 and press Return. Return to the Report Format screen by pressing the escape key.

Printing the Sales-by-Rep Report

Next, print this report so that you can see the calculations on paper. Be sure the printer is on, press OA-P, and press the return key three times. Your report should look like the one in FIGURE 2.

Sales representative CS brought in a total of $78,239 last year and $82,769 this year, an increase of $4530. RJN picked up a new customer and went from $73,224 to $85,778, an increase of $12,554, despite the fact that Family Centers fell behind. RKW went from $41,437 to $45,795, an increase of $4358. AppleWorks will update these calculations automatically when you enter new sales figures. Press OA-S to store this report on disk.

You now have three reports in the customer data base—a master account list and two versions of a sales-to-date report. The report in FIGURE 3 is a third version. The remaining spare category is now called NOTES, and contains comments and reminders to and from the sales staff. This data base is well suited for mailing labels, too. In the next session (see p. 48), we'll convert the sales-to-date report to a spreadsheet. If you make any changes between now and then, give the data base another name and keep the original version intact.◄

Converting a Data-Base Report to a Spreadsheet

by Ruth K. Witkin

Converting the sales-to-date report to a spreadsheet provides a good opportunity to sharpen your skills.

When a data-base report contains financial information, converting it to a spreadsheet has significant advantages. You can create formulas that work with numbers in diverse cells, not only column to column, and use built-in calculating functions, not just simple arithmetic. Best of all, you don't have to retype anything that's already in the data base.

In this session, you'll use the Data-Interchange Format (DIF) to convert the sales-to-date report in the Customers data base (see "Working with a Customer Data Base—Part 2," p. 41) to a spreadsheet. FIGURE 1 shows the report reborn as a spreadsheet, FIGURE 2 shows how it looks at maturity. If you haven't yet created the Customers data base, now is the time to do it.

Every instruction given here is step by step, unlike the set-up summaries I often give. If you haven't tried converting files yet or you're just getting up to speed with AppleWorks, this is a good opportunity to sharpen your skills and pick up techniques of which you may not be aware.

You'll need a pathname when AppleWorks asks for it. The pathname, which tells AppleWorks where to look for a file, is a combination of diskname and filename, each preceded by a slash. Check the name of the disk on which your CUSTOMERS file is stored and jot down the pathname on a piece of paper in this form: */DISKNAME/SALES*. For example, my data disk is *DATA17*, so my pathname is */DATA17/SALES*.


```
File: COMP SALES              REVIEW/ADD/CHANGE          Escape: Main Menu
========A========B========C========D========E========F========G========H=====
  1|      179Ace SuperCT      Food          33722    35999Gil Freem
  2|       85Allied GrNY      Food          32100    32645Evelyn Av
  3|      153American NY      Variety                 93210llie O'D
  4|      142Arbor SalNJ      Discount      28560    32742Ben W. Sm
  5|       43Crown SupMA      Food          19517    18203Homer Cap
  6|       56Dollar ShFL      Discount      30450    32345Don Johns
  7|       87Family CeNJ      Variety       12564    11070Fay L. By
  8|       22Key MarkeMD      Food          10987    13450Ken Wolin
  9|       630ff The SCT      Discount      25000    28567Connie Do
 10|
 11|
 12|
 13|
 14|
 15|
 16|
 17|
 18|
--------------------------------------------------------------------------------
A1: (Value) 179

Type entry or use @ commands                                  @-? for Help
```

Figure 1. The data-base report in its debut as a spreadsheet.

Converting the Data-Base Report

Start up the AppleWorks program and load the *CUSTOMERS* file. You should now see the multiple-record layout of the Review/Add/Change screen. First, display the sales-to-date report on the Report Format screen: Press OA-P to start the Print command, press the return key to confirm *Get a report format*, type 2, and press the return key again to select *SALES-TO-DATE*.

Next, have AppleWorks print the report to disk as a DIF file: Press OA-P, type 5 (or the number that selects *A DIF file*), and press the return key. When AppleWorks asks for a pathname, type it in this form: */DISKNAME/SALES* and press the return key. The file is written to disk and the Report Format screen returns. Press the escape key three times to return to the main menu.

Now bring the DIF file to the screen as a spreadsheet. Press the return key to confirm *Add files to the Desktop*, type 5 and press the return key to select *Make a new file for the Spreadsheet*, type 2 and press the return key again to select *From a DIF (TM) file*.

```
=====A==B==========C=============D======E========F========G========H=========I====
 1|                              COMPARATIVE SALES TO DATE
 2|=============================================================================
 3|ACC#  CUSTOMER                HQ  BUSINESS  1985     P/SALES    1986     P/SALES
 4|=============================================================================
 5|179   Ace Supermarkets        CT  Food      33,722   17.5% (2)  35,999   16.8%
 6| 85   Allied Grocers          NY  Food      32,100   16.6%      32,645   15.2%
 7|153   American Stores          NY  Variety              0.0%       9,321    4.3%
 8|142   Arbor Sales Co.         NJ  Discount  28,560   14.8%      32,742   15.3%
 9| 43   Crown Supermarts        MA  Food      19,517   10.1%      18,203    8.5%
10| 56   Dollar Shops Inc.       FL  Discount  30,450   15.8%      32,345   15.1%
11| 87   Family Centers          NJ  Variety   12,564    6.5%      11,070    5.2%
12| 22   Key Markets             MD  Food      10,987    5.7%      13,450    6.3%
13| 63   Off The Shelf, Inc.     CT  Discount  25,000   13.0%      28,567   13.3%
14|                                              -------             -------
15|                      TOTALS                 192,900 (1) 100.0%  214,342  100.0%
16|
17|
```

Figure 2. The data-base report, now a fully functioning spreadsheet. The highlighted cells show where the formulas are first entered.

AppleWorks now asks for the pathname. Type your pathname in the same form as before—*/DISKNAME/SALES*—and press Return. AppleWorks asks you to name this new file. Type COMP SALES (for comparative sales) and press the return key again.

That mess on the screen is indeed a spreadsheet, barely recognizable as such except for the cell contents line that displays A1, the cell on which the cursor rests, and *(Value) 179*, the contents of A1. Only the hard data are transferred from a data-base report, so the calculated category you inserted into the sales-to-date report between columns F and G is missing, as are the totals of columns E and F.

Setting Up the Spreadsheet

First, insert the rows that will make the spreadsheet look more like the one in FIGURE 2: Leave the cursor on A1, press OA-I, and press Return to confirm *Rows*. Type 3 and press Return again.

Next, insert two columns, one before column B to separate the right-justified numbers in column A from the left-justified labels in column B, and the other before column G to make room for the percentage-of-sales calculations: Place the cursor on B1 and press OA-I. Type C1 and press Return. Move the cursor to G1. Again press OA-I, type C1, and press Return.

The contact names aren't needed in this report. Place the cursor on I1, and delete the column by pressing OA-D, typing C, and pressing Return.


```
File:  COMP SALES                                              Page 1
                                                               10-12-86
                          COMPARATIVE SALES TO DATE
=============================================================================
ACC#  CUSTOMER                HQ  BUSINESS  1985     P/SALES    1986     P/SALES
=============================================================================
179   Ace Supermarkets        CT  Food      33,722   17.5%      35,999   16.8%
 85   Allied Grocers          NY  Food      32,100   16.6%      32,645   15.2%
153   American Stores         NY  Variety              0.0%       9,321    4.3%
142   Arbor Sales Co.         NJ  Discount  28,560   14.8%      32,742   15.3%
 43   Crown Supermarts        MA  Food      19,517   10.1%      18,203    8.5%
 56   Dollar Shops Inc.       FL  Discount  30,450   15.8%      32,345   15.1%
 87   Family Centers          NJ  Variety   12,564    6.5%      11,070    5.2%
 22   Key Markets             MD  Food      10,987    5.7%      13,450    6.3%
 63   Off The Shelf, Inc.     CT  Discount  25,000   13.0%      28,567   13.3%
                                             -------             -------
                      TOTALS                 192,900  100.0%  214,342  100.0%
```

Figure 3. The printed spreadsheet.

AppleWorks allows only 70 characters across a row and enters information only in columns on the screen, so you'll enter the line across row 2 in two steps. Place the cursor on A2 and type quotation marks. Hold down the equal sign key until the sign reaches the right edge of the highlight in G2.

There's no need to press the return key. Just press the right arrow key eight times to bring column I on screen, then the left arrow key to move the cursor back to column H. Type quotation marks and hold down the equal sign key until the sign reaches the right edge of the highlight in I2. Now press the return key.

Using the clipboard to enter the line in row 4 is easier and faster than repeating the hold-down-the-key process. Leave the cursor on H2 and copy the line to the clipboard: Press OA-C, type T to select *To clipboard*, and press Return. This technique adds a whole new row and shoves the entries down one row. Place the cursor on H4 (atop *35999*) and press OA-C again. This time, type F to select *From clipboard*. Presto. If you needed more of these lines, you could just keep copying from the clipboard in the same way.

Adjusting the Column Widths

Next, give the entries the room they need. Place the cursor on A4. Press OA-L to start the Layout command. Type C to select *Columns*, and press Return. Type C again to select *Column width*.

Now reduce the width of column A by holding down the open apple key while you tap the left arrow key five times, then press Return.

Follow the same procedure for the other columns. In each case, place the cursor on a cell in row 4 (B4, C4, and so on) and press OA-L. Type C, press Return, and type C again. Then change the width as follows and press the return key: In column B, press OA-left arrow seven times; in column C, press OA-right arrow 13 times; in column D, press OA-left arrow four times; in column H, press OA-right arrow twice. Things are really beginning to take shape.

Press OA-9 to jump the cursor to row 13. Now enter the short lines in columns F and H. Place the cursor on H14 and type quotation marks. Press the space bar three times, type seven minus signs (one character shorter than the numbers), and press the left arrow key twice to move to F14. Type quotation marks, press the space bar once, type seven minus signs (again, one character short), and press the return key.

Entering and Formatting the Labels

Press OA-1 to jump the cursor to row 1. Now enter the new labels. Place the cursor on D1 and type COMPARATIVE SALES TO DATE. There's no need to press the return key between labels. Move the cursor to A3 and type ACC#. Enter the other labels in the same way: In C3, type CUSTOMER. In D3, type HQ (for headquarters). In E3, type BUSINESS. In F3, first type quotation marks (or else AppleWorks will think the year is a value) and type 1985. In G3, type P/SALES (for percentage of sales). In H3, type quotation marks, then 1986. In I3, type P/SALES. In C15, type TOTALS. Now press Return.

Leave the cursor on C15 and right-justify TOTALS by pressing OA-L, the return key to confirm *Entry*, and typing LR. Press OA-2 to jump the cursor to row 2. Now center the headings in row 3, columns F to I. Place the cursor on F3 and press OA-L, type B (for *Block*), press the OA-right arrow combination, and press the return key. Type LC.

Formatting the Numbers

The numbers in columns F and H are dollar amounts, but dollar signs will only crowd the spreadsheet. Instead, set a standard value of Commas with no decimal places. The Commas format

places the numbers one character shy of the right edge of the cell, to align them better with the headings. Leave the cursor on F3, press OA-V, and press Return. Type C and press Return again.

The numbers in columns G and I are percentages. A neat technique for reducing the number of format steps is to override the standard value in *only one* cell. Then, when you enter a formula in that cell and copy it, the formula will carry the percent format with it. Place the cursor on G5 and press OA-L. Now press the return key twice to confirm *Entry* and *Value format*, type P1, and press Return. Press OA-S to store your work on disk.

Entering the Formulas

FIGURE 2 shows the formula locations. Some people type everything into a formula, including the cell locations, a practice that increases the risk of typos and inaccurate results. The better way is to move the cursor to the cell locations and type everything else.

Formula 1: 1985 Total

Formula 1 adds the sales in 1985 and produces the total in F15. Place the cursor on F15 and type @SUM(. Press the up arrow key, type a period, press OA-3, and press Return. Type a closed parenthesis. The formula on the entry line should be: *@SUM(F14. . .F4)*. Press the return key.

Copy Formula 1 into H15 so that it adds the 1986 sales figures: Leave the cursor on F15 and press OA-C. Press the return key twice, press the right arrow key twice, and press Return. AppleWorks asks if F14 is a *No change* or *Relative* reference. Relative references are cells that are in the same direction and distance to the copied formula as they are to the original formula. Tell AppleWorks that both F14 and F4 are relative by typing R twice.

Formula 2: Each Entry as a Percentage of Sales

Formula 2 calculates the Ace Supermarkets sales (F5) as a percentage of 1985 sales (F15). Place the cursor on G5 and type a plus sign. Press the left arrow key and type a slash. Move the cursor to F15. The formula on the entry line should be: *+F5/F15*. Press the return key.

Now copy Formula 2 down column G so that it calculates each entry as a percentage of sales: Leave the cursor on G5 and press OA-C. Press the return key twice to confirm *Within worksheet* and

the *Source*. It's often more efficient to copy a formula straight down a column, even into a cell that doesn't need it (in this case, G14) because it's faster to blank out a cell than repeat the copy steps. Press the down arrow key, type a period, press OA-9, and press Return.

AppleWorks again asks about *No change* and *Relative* references. A *No change* reference is a target cell. Regardless of the cell into which you copy the formula, it will continue to refer to the target cell to do its calculations. Tell AppleWorks that F5 is a relative cell reference and F15 is *No change* by typing R and pressing Return.

Next, copy Formula 2 into the first cell in column I. Leave the cursor on G5 and press OA-C. Press the return key twice, the right arrow key twice, and the return key again. This time, both F5 and F15 are relative cell references, so type R twice.

To calculate each customer's contribution to sales in 1986, copy Formula 2 down column I: Place the cursor on I5 and press OA-C. Press Return twice, press the down arrow key, and type a period. Now press OA-9 and press Return again. Cell H5 is a relative reference, H15 is *No change* (a target), so type R and press Return.

Now blank out the unneeded formulas: Place the cursor on I14, press OA-B, then the return key. Place the cursor on G14, press OA-B, and the return key. Press OA-S to store the spreadsheet on disk.

It's always a good idea to protect formulas from accidental change: Place the cursor on G5 and press OA-L. Now type B, press OA-9, press Return, and type PN. Move the cursor to I5 and press OA-L. Type B, press OA-9, press Return, and type PN again. Place the cursor on F15 and press OA-L. Type B, press OA-right arrow, press Return, and type PN.

Printing the Spreadsheet

The last step before printing is to increase the top margin and change the line spacing, which is a combination of eight lines to the inch and double spacing, an interesting alternative to standard single or double spacing. Press OA-O to bring up the Printer Options screen. Type TM and press Return. Type .5 and press Return. Type LI and press Return. Type 8 and press Return. Type DS and press Return. Press the escape key to exit the Printer Options screen.

Now turn on your printer. Press OA-P to start the Print command and press Return to confirm *All*. Press the return key to select the printer (or type a printer number, then Return). Type today's date and press the return key twice. When the printer stops, here's your spreadsheet report, looking just like the one in FIGURE 3. Press OA-S to store this final version on disk.◄

An AppleWorks Bar-Graph Template

by David Goodrum and Joel Robbins

To effectively show information in a graphics format, bar graphs may be just what you're looking for.

Suppose your principal has asked you to submit a written proposal justifying your request for more computers for your department. How can you highlight the four-year increase in student and teacher use of the current computers?

Or perhaps your government students don't understand the changes in voter registration in the last 50 years, and you'd like to show them a graphic illustration. Maybe your English students haven't used enough facts in their research reports and they need to add clear statistical information.

If you have similar problems and goals, the following AppleWorks tutorial on bar graphs may be just what you're looking for. You can fill the Bar Graph spreadsheet template with data of your choice, "clipboard" it to the AppleWorks word processor, then copy it into the middle of any report. At first, your bar graph may seem a little strange because it's composed of symbols rather than solid boxes. But it still effectively shows information in a graphics format. Refer to FIGURE 1, a graph showing the change in number of students in one school's newspaper class during a six-year period.

Starting the File

The first template you'll create is called Bar Graph. As its name implies, this template will help you set up a display to graphically present statistical data to your class, committee, or boss. You can include the chart as part of a larger report. It doesn't represent the usual spreadsheet application, but it's simple to set


```
S     COLUMNS
=======A====B==CD==E====F===G====H===I====J===K====L===M====N===O===
1   5555555          12       11       10       12       13       14
2  FILLER ^        ------   ------   ------   ------   ------   ------
3         1  15|       1        1        1        1        1        1
4  BLANK  ^   14|       1        1        1        1        1   ######
5             13|       1        1        1        1   ######   ######
6  LEGEND >   12|  ######        1        1   ######   ######   ######
7  l's    >   11|  ######   ######        1   ######   ######   ######
8  of units   10|  ######   ######   ######   ######   ######   ######
9              9|  ######   ######   ######   ######   ######   ######
10 STUDENTS    8|  ######   ######   ######   ######   ######   ######
11 IN          7|  ######   ######   ######   ######   ######   ######
12 NEWSPAPER   6|  ######   ######   ######   ######   ######   ######
13 CLASS       5|  ######   ######   ######   ######   ######   ######
14 1981-86     4|  ######   ######   ######   ######   ######   ######
15             3|  ######   ######   ######   ######   ######   ######
16             2|  ######   ######   ######   ######   ######   ######
17             1|  ######   ######   ######   ######   ######   ######
18             0|---1981-----1982-----1983-----1984-----1985-----1986
```

Figure 1. Bar Graph, an AppleWorks spreadsheet template.

up, it's of general interest, and it illustrates the idea of integrated software as a "shapeless container."

First boot up AppleWorks and choose to add a new file for the spreadsheet from scratch. Name it BAR GRAPH. Then press OA-V (the open apple key and the letter V for *Standard values*) to change the Recalculation Frequency to Manual; otherwise, the template would try to recalculate every time you enter information, and that would slow down the setup process.

General Formatting

Now look at FIGURE 1 and follow these steps:

1) Type seven 5's in cell A1. Any seven-digit number will suffice; this makes the symbols ###### fill the bars in the graph.

2) Type "FILLER ^" in cell A2 to label the place where the fill number goes.

3) Type "1" into cell A3. This will print only a "1" above the tops of the bars. (A number is necessary so that the spreadsheet has something to calculate.)

4) Type "BLANK ^" in cell A4 to point to the "1" you've just put in.

```
R
O
W
S  ===A=====B==CD==========E================F================G=====COLUMN
1  5555555       12                          11
2  FILLER ^      ----------------------      --------------------
3  1          15| @IF(E1>B4+.5,A1,A3)        @IF(G1>B4+.5,A1,A3)
4  BLANK   ^  14| @IF(E1>B5+.5,A1,A3)        @IF(G1>B5+.5,A1,A3)
5             13| @IF(E1>B6+.5,A1,A3)        @IF(G1>B6+.5,A1,A3)
6  LEGEND  >  12| @IF(E1>B7+.5,A1,A3)        @IF(G1>B7+.5,A1,A3)
7  1's     >  11| @IF(E1>B8+.5,A1,A3)        @IF(G1>B8+.5,A1,A3)
8  of units   1Ø| @IF(E1>B9+.5,A1,A3)        @IF(G1>B9+.5,A1,A3)
9              9| @IF(E1>B1Ø+.5,A1,A3)       @IF(G1>B1Ø+.5,A1,A3)
1Ø STUDENTS    8| @IF(E1>B11+.5,A1,A3)       @IF(G1>B11+.5,A1,A3)
11 IN          7| @IF(E1>B12+.5,A1,A3)       @IF(G1>B12+.5,A1,A3)
12 NEWSPAPER   6| @IF(E1>B13+.5,A1,A3)       @IF(G1>B13+.5,A1,A3)
13 CLASS       5| @IF(E1>B14+.5,A1,A3)       @IF(G1>B14+.5,A1,A3)
14 1981-86     4| @IF(E1>B15+.5,A1,A3)       @IF(G1>B15+.5,A1,A3)
15             3| @IF(E1>B16+.5,A1,A3)       @IF(G1>B16+.5,A1,A3)
16             2| @IF(E1>B17+.5,A1,A3)       @IF(G1>B17+.5,A1,A3)
17             1| @IF(E1>B18+.5,A1,A3)       @IF(G1>B18+.5,A1,A3)
18             Ø|---1981              -----   --1982

        Putting in the Formulas
```

Figure 2. Bar Graph expanded to show formulas.

5) Enter the rest of the information in column A as labels. You can enter numbers as labels by starting with a shift-quote mark.

6) Place the cursor anywhere in column B and hit OA-L (layout), and select *Column*.

7) Highlight column B and hit the return key.

8) Choose the column-width option.

9) Use OA-left arrow to shrink column B to four spaces.

10) Fill in column B, starting at cell B3, with the numbers 15 down to zero, as shown in FIGURE 1.

Use a process similar to the one shown in steps 6 through 9 to narrow columns C and D to a width of one space each. Now to complete the formatting before we start formulas, hit shift-" and "|" to place a vertical bar in cell C3, then complete the following steps:

1) Leave the cursor in cell C3.

2) Hit OA-C (copy).

3) Press Return to confirm *Within worksheet* prompt.

4) The source is already highlighted, so press Return again.

5) Enter a period, which tells AppleWorks you're going to highlight a range of cells starting at cell C3.

6) Then use the down arrow to highlight the destination down through cell C18.

7) Press Return.

Narrow columns E, G, I, K, M, and O to six spaces each—three less than the default width. Similarly, reduce columns F, H, J, L, and N to three spaces each. This lets you have up to six bars in your chart.

Type the sample numbers from cells E1, G1, I1, K1, M1, and O1 of FIGURE 1 into the same cells in your template. Then type six hyphens (remember that you must press shift-quote mark before pressing the hyphen so that you enter a label) into cell E2. After inserting the first set of hyphens, repeat the process for cells G2, I2, K2, M2, and O2, or use OA-C to copy E2 individually into the other cells.

Look at the information in cells E18 through O18 in FIGURE 1. You can type in this descriptive row of labels by starting with a shift-quote mark and entering the entire line before hitting Return.

Our template contains only one basic formula, but it varies slightly with the cell and row into which it's placed. For example, the formula in E3 picks up a number from E1, G3 picks up a number from G1, J3 from J1, and so on.

Let's pause to interpret the formula: @IF(E1>B4+.5,A1,A3). Users of BASIC should recognize the logic: If the contents of cell E1 are greater than the contents of cell B4 plus .5, then display in cell E3 the number currently in cell A1, else display the number from A3. The .5 has a rounding effect on the result of the formula. If you don't understand this right away, don't feel lonely. Working with spreadsheet formulas takes some getting used to.

Type the information found in cell E3 of FIGURE 2 (you can expand it and zoom in on it with OA-Z to show the formulas) into cell E3 of your template, then press OA-C and follow these steps to copy the formula down column E:

1) Press Return for prompt *Within worksheet*.

2) Press Return if E3 is highlighted.

```
TEMPLATE:  BAR GRAPH, spreadsheet

USES:  Make a simple bar graph to illustrate lessons in your
       classroom or to present information to committees.

REMEMBER:

        1.  The bar of the graph must be made of numbers.
            Type in those in cell A1. If you want #'s to
            appear, type a number longer than six digits.

        2.  Use the left column, starting with row 6, to
            mention your legend and name the graph.

        3.  The top row of the template should be filled
            with the appropriate numbers. Divide your
            numbers by 10; 100; 1000; 10,000; 100,000; or
            1,000,000 so that the bar graph will work with
            the numbers in column C. Change the legend
            accordingly.

        4.  The bottom row can contain dates or
            categories.

        5.  After you've entered your data into the
            appropriate cells, type OA-K to display new
            bars.

        6.  You can extend the graph beyond the border of
            the screen if you need more columns.

        7.  When you use OA-P to print, choose the BLOCK
            option, then highlight only the section you
            want to print.
```

Figure 3. Quick documentation for Bar Graph template.

3) Use "." and then the down arrow to highlight destination cells through E17, and press Return.

4) AppleWorks will now ask whether each part of the formula is *Relative* or requires *No change*. The only part of the formula that's relative to other cells is "B4," so press N (no change), R (relative), N, and N again as each one of the four parts of the formula is highlighted.

Don't enter the formulas into the rest of the template until you've finished the other steps listed below.

You're now ready to test the template by hitting OA-K (calculate). A bar graph should appear. If it doesn't, check your layout against FIGURES 1 and 2 and the text.

If this part of the template works, follow these steps to move the formula in E3 to G3:

1) Place cursor in cell E3.

2) Press OA-C and Return to choose *Within worksheet.*

3) Press Return if E3 is highlighted.

4) Use right arrow to move cursor to G3, then hit Return.

5) AppleWorks will now ask whether each part of the formula is *Relative* or requires *No change*. Press R, N, N, and N as each one of the four parts of the formula is highlighted.

6) Now, starting with your cursor in G3, use the steps given in the previous directions to copy G3 down column G. (The pattern here is N, R, N, N.)

7) Use this set and the previous set of directions to place the formula into cells I3, K3, M3, and O3, then copy it down those respective columns.

Editing Your Graph

Remember that you can make the template wider and longer. You can also change the numbers in row 18 to names or titles; you can change the amounts in row 1 and use decimals. FIGURE 3 contains quick documentation, which you should store in a word-processing file on the same disk with your new template.

We used OA-L (layout) in conjunction with the block option in our template to designate cells for labels (words) or values (numbers) only, or to protect cells with formulas.

You should now have a good idea of the procedure for entering formulas and creating a format in the spreadsheet. It takes some time to set up the template, but now whenever you need a bar graph, you'll have to enter only a few numbers, a legend, and a title. You can even make your bar chart part of a larger document: Print it to the clipboard, switch to a word-processing file, copy it from the clipboard, and adjust your margins.◄

A Spreadsheet Gradebook

by James G. Troutman

AppleWorks goes to school: For busy teachers, a spreadsheet gradebook saves countless hours of tedious computation.

Computing student grades by hand is a lesson in frustration for any teacher. Your Apple can help. Many gradebook programs on the market lack the features you need, though, or include so many options they're slow and difficult to use. The solution is simple: With your AppleWorks spreadsheet you can create a gradebook that's convenient, fast, and easy to operate.

Although preparing the initial format takes some time, you'll soon make it up when you begin using your new gradebook. The accompanying AppleWorks spreadsheet also meets one specific need: dropping the lowest score, a feature not found in some gradebook programs. You can easily edit it to meet other requirements, too, such as weighting grades.

This article assumes readers have a basic knowledge of AppleWorks, but includes detailed directions for lookup tables and IF formulas. FIGURE 1 shows the final gradebook report. It's limited to four test scores and a roster of ten students, but is easy to alter for other class sizes and different testing procedures.

When you see a key combination such as OA-V in the following instructions, hold down the open apple key while typing V. For repeated combinations, such as OA-down arrow (6 times), hold down the open apple key and press the down arrow six times.

Setting Column Widths

We'll start by constructing a general gradebook format you can use repeatedly to construct a grade sheet for each class you teach. Begin by using the AppleWorks Startup and Program disks to bring up a new spreadsheet screen. Choose *Add files to the Desktop* from the main menu, go to *Make a new file for the Spreadsheet*, *From scratch*, and type a name for this file: GRADE FORMAT.

At this point you should see the Review/Add/Change screen. Use the following description while you set up your spreadsheet so that it looks like the one in FIGURE 2.

Use the layout command, OA-L, to increase the width of column A by six characters. Select *Columns*, highlighting column A, then select *Column width*, press OA-right arrow (6 times), and hit the return key. This will allow you 15 character spaces for each student name.

Reduce columns B, C, D, E, and F by two characters each: Again use OA-L, select *Columns*, highlight columns B, C, D, E, and F with the right arrow and return keys, select *Column width*, and press OA-left arrow (2 times). End by pressing the return key.

Column G should be reduced to a six-character width: Type OA-L, select column G and *Column width*, press OA-left arrow (3 times) and the return key. Columns H and I should remain at the standard nine-character width.

Reduce column J to six characters the same way you reduced column G. Increase column K by six characters to correspond to column A, since K will also contain student names. Columns L and M should remain at the standard nine-character width.

Labeling Your Spreadsheet

Type labels into rows 1, 2, 15, 16, and 17 as shown in FIGURE 2. Then type OA-L and select *Block* to change the items in B1 through J2 to *Label format*, *Right justified*. This will make the format labels look like those in FIGURE 2.

You may want to consider using OA-V to set the *Standards/Value* format to *Commas* with zero decimal places. The numbers you'll use in the table will never be large enough to need commas, but this method of formatting places the numbers one character shy of the right edge of the cell, to produce columns better aligned with the headings.

FIGURE 3 shows the locations of the formulas that perform the calculations. Formulas will be placed in columns F, G, H, I, and J and in rows 15, 16, and 17.

Formula 1: Total

Using the arithmetic function @SUM(B2. . .E2), place formula 1 in cell F2. Since you'll need the same relative formula in cells

MATH 153.04	TEST 1	TEST 2	TEST 3	TEST 4	TOTAL	MIN SCORE	AVERAGE SCORE	FINAL AVERAGE	GRADE	MATH 153.04 NAME
NAME	100	100	100	100	400					
ABROMITIS R.	94	61	89	88	332	61	83.0%	90.3%	4	ABROMITIS R.
BECKER T.	86	64	67	71	288	64	72.0%	74.7%	2	BECKER T.
CAVANAUGH L.	64	74	89	76	303	64	75.7%	79.7%	2	CAVANAUGH L.
DICKINSON A.	67	73		70	210	67	70.0%	70.0%	2	DICKINSON A.
GLADFELTER J.	82	70	83	81	316	70	79.0%	82.0%	3	GLADFELTER J.
KELLER C.	76	67	67	68	278	67	69.5%	70.3%	2	KELLER C.
LUCKAS F.	90	91	100	95	376	90	94.0%	95.3%	4	LUCKAS F.
PARR G.	75	77	72		224	72	74.7%	74.7%	2	PARR G.
RUSSEL D.	79	64	59	53	255	53	63.7%	67.3%	1	RUSSEL D.
SCOTT E.	78	71	68	73	290	68	72.5%	74.0%	2	SCOTT E.
MAXIMUM	94	91	100	95	376		94.0%	95.3%	4	MAXIMUM
MINIMUM	64	61	59	53	210		63.7%	67.3%	1	MINIMUM
AVERAGE	79.1	71.2	77.1	75.0	287.2		75.4%	77.8%	2.40	AVERAGE

Figure 1. Printed report for AppleWorks gradebook.

F4 through F13, call up AppleWorks' copy function: Place the cursor on cell F2 and type OA-C, choose *Within worksheet*, and hit the return key to indicate that you want to copy cell F2. Move to cell F4 and press the return key. Use *Relative* for all reference cells. You'll copy this formula into the remainder of column F later.

Formula 2: Minimum Test Score

Column G will contain the minimum score for each student. In cell G4 type the minimum arithmetic function, formula 2, as @MIN(B4...E4).

Formula 3: Average Score

In the H column you'll need to place the average of all test scores. Move to cell H4 and type in formula 3, +F4/(@COUNT (B4...E4)*100). This formula makes use of the arithmetic function COUNT and lets you enter a blank for a missing grade without affecting the average of the scores. ERROR will appear in cell H4, because you haven't yet included any test grades. Ignore the ERROR message for the moment.

Formula 4: Final Average

We'll place the formula for the final average in column I. As mentioned above, this spreadsheet will use a formula that drops the lowest grade. The formula for this situation is an IF statement that determines whether the student is missing any grades (one of them would be dropped from the calculations).

Indicate a missing grade by leaving a blank space when you type in scores. If you use a zero to represent a missing grade, AppleWorks will still calculate the final average by dropping the lowest grade (now a zero), but the zero will adversely affect the calculations for minimum and average test score.

Move to cell I4 and enter formula 4, @IF(@COUNT (B4...E4)*100 = F2, + (F4 – G4)/(F2 – 100), + F4/(F2 – 100)). If there are no blank test scores, the final average is computed as the total of the scores minus the lowest score (G4), divided by the sum of the total possible scores minus 100. If any test is blank, the final average is computed as the total of the scores, divided by the sum of the total possible scores minus 100.

```
File: GRADE FORMAT                REVIEW/ADD/CHANGE                Escape: Main Menu
==========A=========B======C======D======E======F======G=======H========I======J===
  1|COURSE          TEST 1 TEST 2 TEST 3 TEST 4  TOTAL   MIN    AVERAGE     FINAL
  2|NAME                                                 SCORE    SCORE   AVERAGE GRADE
  3|
  4|
  5|
  6|
  7|
  8|
  9|
 10|
 11|
 12|
 13|
 14|
 15|MAXIMUM
 16|MINIMUM
 17|AVERAGE
 18|
```

Figure 2. Setting up the gradebook spreadsheet.

Formula 5: Numeric Grade

If you're using a numeric grading scale of zero = F, 1 = D, 2 = C, 3 = B, and 4 = A, use columns J, L, and M. Column J contains the formula that calculates the numeric grade through a lookup table located in columns L and M. Go to cell J4 and enter formula 5, @LOOKUP (I4*100,L1...L5). Again ignore the ERROR message.

In columns F, G, H, I, and J of row 4, you have now entered all the necessary formulas for calculating individual grades. Now you need to copy them into rows 5 through 13. Place the cursor in cell F4 and type OA-C for copy, select *Within worksheet*, and press right arrow (4 times) to cell J4 to indicate that you want to copy all formulas in this row.

Hit the return key, down arrow to F5, type a period, down arrow through the spreadsheet to cell F13, and press the return key. Use the *Relative* option for all cells in columns F, G, and H. In column I use *Relative* for all cells except the three F2's, which you should enter with *No change*. In column J use the *Relative* option only for the I4; with all other cells use *No change*.


```
File: GRADE FORMAT                REVIEW/ADD/CHANGE                Escape: Main Menu
==========A=========B======C======D======E======F======G=======H========I======J===
  1|COURSE          TEST 1 TEST 2 TEST 3 TEST 4  TOTAL   MIN    AVERAGE     FINAL
  2|NAME                                          [1]    SCORE    SCORE   AVERAGE GRADE
  3|
  4|                                              [1]    [2]      [3]     [4]     [5]
  5|                                              [1]    [2]      [3]     [4]     [5]
  6|                                              [1]    [2]      [3]     [4]     [5]
  7|                                              [1]    [2]      [3]     [4]     [5]
  8|                                              [1]    [2]      [3]     [4]     [5]
  9|                                              [1]    [2]      [3]     [4]     [5]
 10|                                              [1]    [2]      [3]     [4]     [5]
 11|                                              [1]    [2]      [3]     [4]     [5]
 12|                                              [1]    [2]      [3]     [4]     [5]
 13|                                              [1]    [2]      [3]     [4]     [5]
 14|
 15|MAXIMUM      [6]  [6]  [6]  [6]  [6]  [6]    [6]     [6]      [6]
 16|MINIMUM      [7]  [7]  [7]  [7]  [7]  [7]    [7]     [7]      [7]
 17|AVERAGE      [8]  [8]  [8]  [8]  [8]  [8]    [8]     [8]      [8]
 18|
```

Figure 3. Locations of formulas for grade calculation.

Formulas 6, 7, and 8: Maximum, Minimum, and Average Test Scores

You may find it helpful to tabulate maximum, minimum, and average test scores. To add this function to your spreadsheet, place the appropriate formulas into rows 15, 16, and 17. In cell B15 enter the arithmetic function @MAX(B4...B13). In cell B16 type in @MIN(B4...B13), and in cell B17 enter @AVG (B4...B13). Ignore the ERROR message.

Now copy these formulas into the cells to the right: Place the cursor in cell B15 and type OA-C, *Within worksheet*, highlight B15, B16, and B17, press Return, move to cell C15, and type a period. Use the right arrow to move through the spreadsheet to cell J15. Use the *Relative* option for all cells.

Cell Values and Printer Options

Now it's time to change some of your standard layout values. Begin in B17. Type OA-L, select *Block*, choose through F17, select *Value format*, *Fixed*, and one decimal place. In the H column, type OA-L, select *Columns*, choose through column I, select *Value format*, *Percent*, and one decimal place.

File: FIGURE 4 REVIEW/ADD/CHANGE

	A	B	C	D	E	F	G
1	MATH 153.04	TEST 1	TEST 2	TEST 3	TEST 4	TOTAL	MIN
2	NAME	100	0	0	0	100	SCORE
3							
4	ABROMITIS R.	94				94	94
5	BECKER T.	86				86	86
6	CAVANAUGH L.	64				64	64
7	DICKINSON A.	67				67	67
8	GLADFELTER J.	82				82	82
9	KELLER C.	76				76	76
10	LUCKAS F.	90				90	90
11	PARR G.	75				75	75
12	RUSSEL D.	79				79	79
13	SCOTT E.	78				78	78
14							
15	MAXIMUM	94	0	0	0	94	
16	MINIMUM	64	0	0	0	64	
17	AVERAGE	79.1	ERROR	ERROR	ERROR	79.1	
18							

Escape: Main Menu

H	I	J	K	L	M
AVERAGE SCORE	FINAL AVERAGE	GRADE	MATH 153.04 NAME	0.00	0
				59.99	1
				69.99	2
94.0%	ERROR	ERROR	ABROMITIS R.	79.99	3
86.0%	ERROR	ERROR	BECKER T.	89.99	4
64.0%	ERROR	ERROR	CAVANAUGH L.		
67.0%	ERROR	ERROR	DICKINSON A.		
82.0%	ERROR	ERROR	GLADFELTER J.		
76.0%	ERROR	ERROR	KELLER C.		
90.0%	ERROR	ERROR	LUCKAS F.		
75.0%	ERROR	ERROR	PARR G.		
79.0%	ERROR	ERROR	RUSSEL D.		
78.0%	ERROR	ERROR	SCOTT E.		
94.0%	ERROR	ERROR	MAXIMUM		
64.0%	ERROR	ERROR	MINIMUM		
79.1%	ERROR	ERROR	AVERAGE		

Figure 4. AppleWorks gradebook with first test scores entered.

Move to column L. Type OA-L, select *Column highlighting*, *Column L*, *Value format*, *Fixed*, and two decimal places. Blank cells G15, G16, and G17 by moving to G15; type OA-B, select *Block*, select through G17, and press Return. Finally, in cell J17 type OA-L, select *Entry*, *Value format*, *Fixed*, and two decimal places.

You need to insert several set values into your spreadsheet. Place a zero in cells B2, C2, D2, and E2. Type a zero in cell L1, 59.99 in L2, 69.99 in L3, 79.99 in L4, 89.99 in L5, zero in M1, 1 in M2, 2 in M3, 3 in M4, and 4 in M5.

To access your printer options, type OA-O, set the characters per inch to 12, the top margin to 1, bottom margin to 1, and *Print Report Headers* to *No*.

Now save the final gradebook format with OA-S.

Initializing the Gradebook

At the beginning of a semester, construct a gradebook for each section you're going to teach. With the AppleWorks Startup and Program disks, choose *Add files to the Desktop*, the *current disk*, and your *Grade Format* file. Use OA-N to rename it; for purposes of illustration, call your class MATH 153.04.

In cell A1 replace the label COURSE with MATH 153.04. Beginning in A4 and continuing through A13, enter the names of the ten students in the class. If you place their last names first you can later use OA-A to arrange your gradebook in alphabetical order.

Copy all of column A into column K to allow for easier reading: Type OA-C with the cursor in A1, and select *Within worksheet*, down arrow to A17, and Return. Move to cell K1 and copy column A by pressing the return key. It's easier to read column K when it's right-justified, so type OA-L, *Column*, Return, *Label format*, and *Right justified*. You've already entered your students' names and are ready to begin the marking period.

File: MATH 153.04 REVIEW/ADD/CHANGE

	A	B	C	D	E	F	G
1	MATH 153.04	TEST 1	TEST 2	TEST 3	TEST 4	TOTAL	MIN
2	NAME	100	100	100	0	300	SCORE
3							
4	ABROMITIS R.	94	61	89		244	61
5	BECKER T.	86	64	67		217	64
6	CAVANAUGH L.	64	74	89		227	64
7	DICKINSON A.	67	73			140	67
8	GLADFELTER J.	82	70	83		235	70
9	KELLER C.	76	67	67		210	67
10	LUCKAS F.	90	91	100		281	90
11	PARR G.	75	77	72		224	72
12	RUSSEL D.	79	64	59		202	59
13	SCOTT E.	78	71	68		217	68
14							
15	MAXIMUM	94	91	100	0	281	
16	MINIMUM	64	61	59	0	140	
17	AVERAGE	79.1	71.2	77.1	ERROR	219.7	
18							

Escape: Main Menu

	H	I	J	K	L	M
	AVERAGE SCORE	FINAL AVERAGE	GRADE	MATH 153.04 NAME	0.00	0
					59.99	1
					69.99	2
	81.3%	91.5%	4	ABROMITIS R.	79.99	3
	72.3%	76.5%	2	BECKER T.	89.99	4
	75.7%	81.5%	3	CAVANAUGH L.		
	70.0%	70.0%	2	DICKINSON A.		
	78.3%	82.5%	3	GLADFELTER J.		
	70.0%	71.5%	2	KELLER C.		
	93.7%	95.5%	4	LUCKAS F.		
	74.7%	76.0%	2	PARR G.		
	67.3%	71.5%	2	RUSSEL D.		
	72.3%	74.5%	2	SCOTT E.		
	93.7%	95.5%	4	MAXIMUM		
	67.3%	70.0%	2	MINIMUM		
	75.6%	79.1%	2.60	AVERAGE		

Figure 5. Gradebook spreadsheet after three tests.

Entering Test Scores

To see your AppleWorks gradebook in action, enter the student scores for test 1. Begin in cell B2. Replace the zero with the highest possible test score—use 100 as an example. List each student's test score in the appropriate cell, B4 through B13.

If you find the time between individual scores too long, change to manual recalculation: Type OA-V, *Recalculation*, *Frequency*, and *Manual*. (Be sure to type OA-K after entering the test scores.) FIGURE 4 shows your gradebook after you've typed in the first test scores. Note that the Final Average and Grade show ERROR, since you need at least two test results to drop the minimum score.

As further illustration, type in student scores for tests 2 and 3. FIGURE 5 shows your gradebook after you've entered three tests. Column F totals all test scores, G contains the minimum score, H calculates the average score, I drops the minimum score and recalculates the average, and J gives a numeric letter grade.

You can complete your AppleWorks spreadsheet by entering the last test score in column E. Your gradebook should now look like FIGURE 1. Note that FIGURE 1 isn't a screen display, but a copy of the gradebook printout. If you want to list the grades in increasing or decreasing order, use OA-A to rearrange column H.

Your spreadsheet gradebook will save you hours of tedious arithmetic—and you can tailor it to fit individual needs. Spend your time and energy pursuing more creative areas of education, and let AppleWorks compute your classes' grades.◄

Publishing a Company Newsletter

by Ruth K. Witkin

Publishing a newsletter is one of the best ways to communicate.

Good communication with employees is the glue that holds a company together. One of the best ways to communicate is through a company newsletter. Properly done, a newsletter creates good will, gets the word out on important matters, and involves employees in the workings of a company. It doesn't have to be fancy, and it shouldn't be frivolous—just accurate, informative reporting of the company's past achievements, current happenings, and future plans.

Newsletters typically contain messages from management, articles on social and athletic activities, safety and health programs, benefits, policies and procedures, employee promotions, service anniversaries, birthdays, and anything else that tells employees, "You're important."

If you publish a newsletter and are often in a bind for material, look into a subscription service that provides articles, artwork, headings, and fillers that can make your newsletter livelier. Berry Publishing (300 North State Street, Chicago, IL 60610) is a good one. Ask for a free copy of *Pages*, its monthly brochure.

Imagine that you're the personnel director of the Vollner Tool & Die Company. You're working on the front page of *The Vollner Voice*. In this session, you create everything shown in FIGURE 1—newsletter name, credits, dashed lines, and a special-occasion report—on the AppleWorks word processor.

When you see such key combinations as OA-Z, hold down the open apple key and type Z. During the creation process, I'll ask you to save the document. If you have a one-drive system, watch the screen for prompts that tell you when to swap the Program disk for the data disk.

*** THE VOLLNER VOICE ***

Written and Published by the Employees of Vollner Tool & Die Company — December 29, 1986

'TIS THE SEASON...

A lively bash for Vollner employees and their families was held in the company cafeteria on Wednesday to celebrate the Christmas-Chanukah season. The party featured an array of enticing foods from shishkabob to sandwiches, music, and all the soda anyone could drink. According to reports, the event was a smashing success.

Reporters on the scene noted the frenzied activities leading up to the party: mini-meetings to discuss the size of the candy canes and where to buy dreidles, last-minute panic because the dreidles hadn't arrived, frantic phone calls to the caterer who didn't show up with the food until five minutes before party time.

But when the big moment arrived, everything was ready and the extra efforts of everyone involved could be seen in the lavish buffet and lovely decorations. At 3 PM, the guests started arriving. Throughout the afternoon, sounds of laughter, singing, shouting, booming music, and dancing feet were heard. And questions like "How come warm soda?" and "What's a dreidle?" and "Can't we get some air in here?"

Reliable sources have identified the employees who contributed to the success of the party: Joan Lynch for arranging for the food and beverages; Lois Maiwald and Josh Lamhut for setup and cleanup; Willie Chen for getting the candy canes and dreidles; Barbara Santoro for lugging a projector to show the slides of the Vollner 15-Year Club dinner; Jim Vinicombe for being an all-around great Santa Claus; Bob Nelson, Jeff Wennerstrom, Ken Wolin, and all the guys in Maintenance for decorating the cafeteria and arranging the tables....and to all of YOU at Vollner for being a great group of people!

FROM THE STAFF OF THE VOLLNER VOICE:
OUR VERY BEST WISHES FOR
A WONDERFUL HOLIDAY SEASON AND THE
HAPPIEST OF NEW YEARS.

Figure 1. The front page of The Vollner Voice, a company newsletter produced with the AppleWorks word processor.

Use the AppleWorks Startup and Program disks to bring up a new word-processor screen. Name this file *NEWSLETTER*. You should now see the Review/Add/Change screen.

Entering the Text

FIGURE 2 contains the text, line numbers, and rectangular characters dubbed *blots*. The blots show where you press the return key to end a paragraph or insert a blank line. Press OA-Z to keep the blots on screen as you work.

The next step is to enter the text. Before you start, though, read the following instructions: To be sure your results agree with

```
*** THE VOLLNER VOICE ***※
※
※
---------------------------------------------------------------
-------------------------------※
Written and Published by the Employees of Vollner Tool & Die
Company                        December 29, 1986※
---------------------------------------------------------------
-------------------------------※
※
※
'TIS THE SEASON...※
※
A lively bash for Vollner employees and their families was
held in the company cafeteria on Wednesday to celebrate the
Christmas-Chanukah season. The party featured an array of
enticing foods from shishkabob to sandwiches, music, and all
the soda anyone could drink. According to reports, the event
was a smashing success.※
※
Reporters on the scene noted the frenzied activities leading
up to the party: mini-meetings to discuss the size of the
candy canes and where to buy dreidles, last-minute panic
because the dreidles hadn't arrived, frantic phone calls to
the caterer who didn't show up with the food until five
minutes before party time.※
※
But when the big moment arrived, everything was ready and
the extra efforts of everyone involved could be seen in the
lavish buffet and lovely decorations. At 3 PM, the guests
started arriving. Throughout the afternoon, sounds of
laughter, singing, shouting, booming music, and dancing feet
were heard. And questions like "How come warm soda?" and
"What's a dreidle?" and "Can't we get some air in here?"※
※
Reliable sources have identified the employees who
contributed to the success of the party: Joan Lynch for
arranging for the food and beverages; Lois Maiwald and Josh
Lamhut for setup and cleanup; Willie Chen for getting the
candy canes and dreidles; Barbara Santoro for lugging a
projector to show the slides of the Vollner 15-Year Club
dinner; Jim Vinicombe for being an all-around great Santa
Claus; Bob Nelson, Jeff Wennerstrom, Ken Wolin, and all the
guys in Maintenance for decorating the cafeteria and
arranging the tables....and to all of YOU at Vollner for
being a great group of people!※
※
※
FROM THE STAFF OF THE VOLLNER VOICE:※
OUR VERY BEST WISHES FOR※
A WONDERFUL HOLIDAY SEASON AND THE HAPPIEST OF NEW YEARS.
```

Figure 2. The text for a column in The Vollner Voice.

the finished product, press the space bar only *once* between sentences. If you make a typo, press the delete key to back up the cursor. You'll find many "employee" names in this piece. It won't hurt anything and it can be fun to substitute the names of people *you* know. Don't go overboard, though; just substitute one-for-one.

Your cursor should be in line 1 column 1. Now enter the text shown in FIGURE 2 according to the instructions shown in the TABLE.

Correcting the Text

Now compare your text with FIGURE 2. If something is missing, place the insert cursor (the blinking underline) on the character to the right of the insertion. If you discover a typo, place the overtype cursor atop the character you want to replace. Pressing OA-E switches from one cursor to the other. If you need to delete anything, just place either cursor to the right of the doomed character and press the delete key.

The following keys get you from one place to another: The left and right arrow keys move the cursor one character at a time in the direction of the arrow. OA-left arrow and OA-right arrow hop the cursor from word to word. The down and up arrow keys move the cursor one line at a time. Keys OA-1 through OA-9 jump the cursor vertically in proportional increments.

When the text is complete, press OA-S to store it on disk.

Printing the Unformatted Document

Seeing how something looks before formatting can give you an idea of the tasks that lie ahead. Turn on your printer. Press OA-P to start the print command. Press the return key to confirm *Beginning*. Now press the return key to select the printer (or type a printer number, then Return). Press the return key again to confirm one copy. When the printer stops, there's your document. Your words are brilliant, of course. But the way it looks—yuch!

Formatting the Document

Getting the results you want is often a matter of doing the obvious first, then testing to see what works better. I wanted this newsletter to have two columns of equal width, page variety, and a professional, typeset look. After some initial planning and a

few false starts—mainly the width of the columns—I finally reached the point where I could say, "That's it." Here's how to do it.

Setting the Margins

First, set the margins. Press OA-1 to jump the cursor to line 1 column 1. Press OA-O to bring up the Printer Options screen. Type TM and press the return key. Type .6 and press the return key again. Now type BM and press the return key. Type 1 and press the return key again. Next, type LM and press Return. Type .5 and press Return. And finally, type RM and press Return. Type .5 and press the return key again.

Character Size and Centering

The next step prints THE VOLLNER VOICE at four characters per inch. Type CI and press the return key. Type 4 and press the return key again. Now center the newsletter name: Type CN and press Return. Press the escape key to exit the Printer Options screen.

Uncentering and Proportional Spacing

Next, have AppleWorks end the centering. Place the cursor on line 8 column 1. Press OA-O, type UJ, and press the return key. The rest of the text is proportionally spaced, which gives each character—skinny *i* or chubby *w*—only the room it needs, unlike standard spacing, which gives every character the same amount of room. AppleWorks has two kinds of proportional spacing—P1 and P2. P1 characters are slightly narrower. Type P1 and press Return. Press the escape key.

Increasing the Article Heading

Next, tell AppleWorks to print *'TIS THE SEASON* at eight characters per inch. Place the cursor on line 20 column 1. Press OA-O, type CI, and press the return key. Type 8 and press the return key again. Press the escape key.

Proportional Spacing and Justifying Text

Now return the text to proportional spacing. Place the cursor on line 23 column 1 and press OA-O. Type P1 and press Return. Next, have AppleWorks justify the lines to produce an even right edge: Type JU and press the return key again.

Line	Action
1	Type ***** THE VOLLNER VOICE ***** and press the return key three times to end the paragraph and insert two blank lines. The cursor moves to line 4.
4	Hold down the minus-sign key until the cursor is on line 5 column 32. The minus sign will wrap around. Release the minus-sign key and press the return key. The cursor moves to line 6.
6	Type **Written and Published by the Employees of Vollner Tool & Die Company**. Hold down the space bar until the cursor is on line 7 column 30. Type **December 29, 1986** and press the return key. The cursor moves to line 8.
8	Hold down the minus-sign key until the cursor is on line 9 column 32. Release the key and press Return three times to end the paragraph and insert two blank lines. The cursor moves to line 12.
12	Type **'TIS THE SEASON. . .** and press the return key twice to end the paragraph and insert a blank line. The cursor moves to line 14.
14	Refer to **Figure 2** and type the entire paragraph starting with *A lively bash for Vollner employees and their families* (remember, only one space between sentences). Press the return key twice to end the paragraph and insert a blank line. The cursor moves to line 21.
21	Type the entire paragraph starting with *Reporters on the scene noted the frenzied activities* and press the return key twice. The cursor moves to line 28.
28	Type the entire paragraph starting with *But when the big moment arrived,* and press the return key twice. The cursor moves to line 36.
36	Type the entire paragraph starting with *Reliable sources have identified the employees* (this is where you can type your own names). At the end of the paragraph, press the return key three times. The cursor moves to line 49.
49	Type **FROM THE STAFF OF THE VOLLNER VOICE:** and press the return key. The cursor moves to line 50.
50	Type **OUR VERY BEST WISHES FOR** and press the return key. The cursor moves to line 51.
51	Type **A WONDERFUL HOLIDAY SEASON AND THE HAPPIEST OF NEW YEARS.** Your cursor should now be in line 51 column 58.

Table. Instructions for entering the text in Figure 2.

Increasing the Right Margin

Next, increase the right margin to allow room for a right column. You are still in the Printer Options screen. Type RM and press Return. Type 4.2 and press Return again. Press the escape key.

Centering the Good Wishes

To give this page a bit more variety, center the last four lines. Press OA-9 to jump the cursor to line 75. Move the cursor to line 71 column 1 and press OA-O. Type CN and press Return. Press the escape key.

THE VOLLNER VOICE

Written and Published by the Employees of Vollner Tool & Die Company — December 29, 1986

'TIS THE SEASON...

A lively bash for Vollner employees and their families was held in the company cafeteria on Wednesday to celebrate the Christmas-Chanukah season. The party featured an array of enticing foods from shishKabob to sandwiches, music, and all the soda anyone could drink. According to reports, the event was a smashing success.

Reporters on the scene noted the frenzied activities leading up to the party: mini-meetings to discuss the size of the candy canes and where to buy dreidles, last-minute panic because the dreidles hadn't arrived, frantic phone calls to the caterer who didn't show up with the food until five minutes before party time.

But when the big moment arrived, everything was ready and the extra efforts of everyone involved could be seen in the lavish buffet and lovely decorations. At 3 PM, the guests started arriving. Throughout the afternoon, sounds of laughter, singing, shouting, booming music, and dancing feet were heard. And questions like "How come warm soda?" and "What's a dreidle?" and "Can't we get some air in here?"

Reliable sources have identified the employees who contributed to the success of the party: Joan Lynch for arranging for the food and beverages; Lois Maiwald and Josh Lamhut for setup and cleanup; Willie Chen for getting the candy canes and dreidles; Barbara Santoro for lugging a projector to show the slides of the Vollner 15-Year Club dinner; Jim Vinicombe for being an all-around great Santa Claus; Bob Nelson, Jeff Wennerstrom, Ken Wolin, and all the guys in Maintenance for decorating the cafeteria and arranging the tables....and to all of YOU at Vollner for being a great group of people!

FROM THE STAFF OF THE VOLLNER VOICE:
OUR VERY BEST WISHES FOR
A WONDERFUL HOLIDAY SEASON AND THE
HAPPIEST OF NEW YEARS.

NAMES IN THE NEWS

In this, our first issue of The Vollner Voice, we offer congratulations and continued success to the following employees who are celebrating employment anniversaries this month.

John Schmidlapp, Tool & Die Maker

John's been with Vollner for 14 years and was the first to graduate from our Tool & Die Apprentice Program. He's a member of the Safety Committee.

Cathy Stewart, Senior Mechanical Engineer

Cathy started in the Drafting Department and attended college at night to earn her ME degree. She's been with Vollner for 12 years.

Bob Nelson, Maintenance Supervisor

Bob reached that 10-year milestone last week. Thanks to Bob, a battery cart with jumper cables is available to employees who find themselves unable to start their car in the parking lot.

Figure 3. The front page of The Vollner Voice complete with typeset name, two columns of text, and an illustration.

Boldfacing

The final step tells AppleWorks to print the newsletter name, credits, and 'TIS THE SEASON in boldface type, which makes them really stand out. Press OA-3 to jump the cursor to line 19. Now place the cursor on line 21 column 1. Press the control key and type B. The caret that appears indicates the start of boldface.

AppleWorks uses the same caret for different printer options. To see what a caret stands for, just place the cursor on the caret. Try it now: Press the left arrow key and there's the description at the bottom of the screen—*Boldface Begin*. There's no need to enter an end caret because boldface cancels itself at the end of a line.

To boldface the other lines, move the cursor to line 14 column 1 and press the control key and B. Now move the cursor to line 7 column 2 and press the control key and B again. The formatting is complete. Press OA-S to store the document on disk.

Printing the Formatted Document

It's printing time again, so be sure your printer is on. Press OA-P to start the Print command. Press the return key three times to confirm *Beginning*, the printer, and one copy. The printer whirs. And presto—the magic of formatting did indeed transform an ugly duckling into a swan.

A Few Comments on Newsletters

When you design something a bit out of the ordinary—like this newsletter—have patience, try new approaches, and stop only when you're truly satisfied with the results. With so many formatting possibilities, there's no need to settle for anything less.

Sometimes you'll have to look beyond AppleWorks and your printer. Clearly, a front page with a typeset name is more attractive. In the absence of typesetting equipment, you can use press-on lettering available at graphics-supply stores. Create the name on a separate sheet of paper, trim the paper to size, and apply *art wax* (not glue or scotch tape) to the back so that you can reuse it in succeeding issues. FIGURE 3 shows the front page of *The Vollner Voice* with this kind of lettering, hand-drawn lines, and an illustration and text pasted into the right column.◄

IDG Communications/Peterborough
80 Elm St.
Peterborough, NH 03458

BULK RATE
U.S. POSTAGE
PAID
PERMIT #71
PETERBOROUGH NH